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A soldier, aged 47, unmarried, had had three hysterical attacks in his life. The first attack occurred at the age of 26, the second at the age of 36, and the third attack a month or two before I saw him. When he came to me he was suffering from extreme loss of memory, and could remember very little of what had happened during the war. He was suffering also from weakness of the legs, a tendency to anaesthesia, especially in the right leg, and a very definite tendency towards dissociation—towards dreamy states, states of mental distraction, when he is unable to concentrate on what is before him.

I will consider the case in the order of my gradual insight into his mental condition. All that is emphasized in the medical case-sheet is that he has recently had an hysterical attack, in which he lost consciousness for some time, and has since suffered from paralysis of the right side, with anaesthesia of the right leg below the knee. In talking to him I do not at first get very much help. He does not tell me very much about himself. And so I proceed to use the method of word association which Jung was the first to introduce into psychology—that is, I draw up a list of words and call them out one after another to my patient. (One calls out the word and starts the watch going, after first instructing the patient to reply with the first word which comes into his mind. If one calls out the word "house," he may reply with the word "garden." Thus:

Stimulus Word.	Reaction.	Association Time.
House	Garden	1.8″
Grass	Green	1.2″

So one goes on, calling out one word after another, interspersing words which one thinks may bear upon the earlier associations of the patient, and may be connected with his dissociation.

I called out the word "death," and the subject remained absolutely silent for twenty seconds, then gave the word "geranium." He smiled as he gave the word, and said it seemed a curious word to give—he did not know why he gave it, but it was the first word that came into his mind. This was all that I got of value from the association test in my case.

I question the man further, and get a certain amount of information from him. He tells me that the first hysterical attack he had was at the age of 26, as I said before. He had just recovered from an attack of influenza, and had walked out to visit a great friend of his. By some mistake he was shown by his friend's sister into a room where the man lay dead in his coffin. His friend, whom we will call J., was dead—had died suddenly after an accident in the football field. My patient had not heard of the death, because of his own illness. This was about eight o'clock at night. My patient staggered out of the house, noticing, however, to his surprise, that he felt very little. He felt shaken, but very cool. He was surprised and annoyed that he felt no grief. Then he lost consciousness, and evidently wandered about London until he came to himself, about four o'clock next morning, in a part of London which he did not recognize. He tried to find out where he was. He met a policeman, who, of course, imagined that he had been drinking. He could not remember his name or address, or anything about himself, but they searched his pockets and found out where he lived, and then took him to a hospital. He lay there for several days, suffering from pain down the right side of the head, over the right eye, pins-and-needles down the right side of the body, weakness of the right leg, giddiness and nausea. At first he had very vivid dreams which he could not remember. Later on he began to get better, however, was allowed up, and finally left the hospital. That was at the age of 26—that is, twenty years before I saw him.

Ten years later he happened to be walking from Boscombe to Bournemouth along the parade, when he suddenly felt giddy again, and had to stagger to the side of the esplanade and support himself against the wall. He nearly lost consciousness, but pulled himself together, got home, and was seen by a doctor. He was again suffering from the same pains and the same tendency towards a dreamy state of consciousness. He went into a hospital on the doctor's advice. (This time, too, he had just recovered from an attack of influenza.) He recovered after he had been in hospital some weeks.

His third attack occurred in October, 1917. He had just had a bout of sciatica, and was thoroughly tired out by drill and all the routine of a soldier's life. This attack resembled the two previous ones, with similar pains in the head and body. He was taken to a military hospital and afterwards transferred to another, where they treated him in a masterly way with electricity and massage and got him on his feet again, so that when he came to me he had roughly recovered from most of his symptoms, but had this extensive loss of memory. He could remember very little that had happened during the war.

As I said, the first thing I discovered about him was that the word "death" gave a long reaction time, and produced as a reaction the curious word "geranium," which he himself could not explain. I then proceeded to hypnotize him, which was of course very easy. He at once passed into a very emotional state, and began to remember things which he had not been thinking about for some years. "Geranium" he then knew to correspond to the nickname of a girl he had known over twenty years before. She had been called the "Geranium Girl" after an advertisement for cigarettes. She was like the girl in the picture which appeared as part of the advertisement. He proceeded to tell me a rather dramatic story of his early life. He had been extremely fond of his friend who had died, whom I have called J. They had been close friends for years, when J. became engaged to this Geranium Girl. While he was at college he asked my patient to help amuse this girl, to take her out to theatres, etc., as she was very lonely. The result was that the girl fell in love with my patient, though he was not in love with her. (It was on his friend J. that his own affections were fixed.) The situation was a very difficult one. He felt disloyal to his friend. He obviously thought much more about his relations with his friend J. than about his feelings towards the girl. His friend never knew the facts, but a coolness sprang up between them, which was intensely painful to my patient. As a result he shot himself, but was taken to hospital and recovered. He saw less of his friend, however, and then the friend died. This was a definite mental wound to my patient, and set up a mental conflict, the result of which seems to have been an amnesia, a loss of memory. There was a tendency for his mind to split up. The memories were not absent from his soul, however, but remained below the surface to produce these attacks in which he went through all these disturbing experiences again — through all this time of mental conflict.

What can one say of his earlier history? As a boy he was fairly normal, except that he noticed that he always had a great desire to sleep in the middle of the day. He would find that the sight of anything bright, like a field of snow, would make him drowsy. The candles in the chapel of the Benedictine monastery, where he was at school, had the same effect upon him. He was at school at this monastery from the age of about 11 to 17, and formed a friendship there with a much older boy. In the course of this friendship an event occurred which disturbed him very much. (I cannot tell you what it was.) It was his duty as a good Catholic to confess, but he did not do so. He tried to put it out of his mind instead. He knew that if he confessed it would be serious for his friend, but if he did not he would be committing a sin. He preferred to commit the sin. The result was a state of mental conflict, followed by repression and amnesia.

These, roughly, are the main facts about his life. He had never known what it was to fall in love with anyone

*The second of two lectures delivered at King's College. The preceding lecture appeared in the BRITISH MEDICAL JOURNAL of January 31st, 1920.

of the opposite sex, but all through his life he had had strong feelings of friendship towards certain people, especially feelings of loyalty. Although he was a private soldier, he was a most intelligent man. He was an inventor, and struck me as being very able. By hypnosis, you see, I brought up some of these facts which he had himself forgotten. I urged him to attempt to synthetize his own mind—to try to improve his memory. And his memory *did* improve. Under hypnosis he worked off a good deal of emotion. (His three hysterical attacks had all been cases of what Breuer and Freud call "abreaction"—the working off of emotion—but an abreaction which was imperfect and incomplete.)

He now began to dream. He dreamed night after night that he was trying to get to a certain village in Sussex, but that briars and thorns and thick hedges kept getting in his way, and he could not cut his way through. At last he met an old man in rags, who was about to tell him something about this village, when he woke up. I tried to interpret the dream for him, but things did not go very rapidly, so I again had recourse to hypnosis. At once he had the same dream again, and could tell me who the old man was; he was a man who used to clean windows in this village in Sussex. He also knew the reason of the dream. He was very anxious about the fate of a young friend of his who had gone to France during the war, and whose name had been posted among the missing. This boy had been in the habit of going to this village. My patient did not know why he went there, but he had guessed that there was a romance going on. He therefore thought that his friend, whom I will call C., would, if he wrote at all, be likely to write to someone in this village, possibly to the window-cleaner. That was why he was trying to get to the village. Now, there were certain reasons why he had tried to disguise the intensity of his feelings even from himself. The result of the analysis of the dream was, therefore, that he became much more communicative, and could tell me very much more. His friend, he said, was many years younger than himself, and, years ago, they had been in the habit of going fishing together a great deal, and had had a very pleasant friendship. They had thought a great deal of one another.

This dream ceased after it had been interpreted, but a few days later he walked in his sleep. He could not tell me what he had dreamt that night, but what actually had happened was that he had walked from the ward, which was upstairs in the hospital, downstairs, and had awakened to find that he was carrying his pillow-case. I discovered under hypnosis that he had been back with his young friend. They were fishing together, and his friend had sprained his ankle. My patient had taken a canvas bag and had fetched cold water and bathed the ankle. The pillow-case was the canvas bag. The curious fact was that he did not remember the dream. But that is typical of somnambulism. I have never met a case where the somnambulist remembered the dream, though hypnosis will bring it back. There is always a mental cause for somnambulism.

My patient now tells me other things about his friend, about whom he is still very much worried. He remembers that, years ago, he himself noticed that he could tell fortunes by looking into a black polished stone, and on one occasion, when his friend was 14 years of age, he saw him in the stone bleeding at the mouth and at the point of death, and he now feels that his prevision has come true, and that his friend has been killed by the Germans.

A week or two later he came to me and asked me to have him confined to the hospital, as otherwise he was afraid that he might break away and go down to this particular village. I offered to let him go, but he said he felt that he ought not to go. He wished to get well first. However, a day or two later I hear that he is missing, and he comes back a few days later and tells me this story: He was having his hair cut when suddenly he had seemed to lose consciousness, and the next thing he had remembered was that he was right in the country, not very far from this particular village. He could not remember how he had got there, but, being in the neighbourhood, he had thought he would go to the village. He had done so, and to his great joy he had discovered that his friend C. had escaped from the Germans and was now safe in Egypt.

He is unable, then, to tell me how he did this. Under hypnosis, however, he tells me that he had an impulse to go, ran the gauntlet of the military police, and took a bus into the country. He was taken up by a motor car and given a lift. Then his consciousness changed. That was the point at which his main consciousness resumed its sway. The result of all this is that his mind is at last at ease about his friend C., and he makes a good recovery. All the time his memory for earlier experiences during the war has been improving.

Such a clinical history illustrates, very typically, the nature of hysteria. This flight from hospital is what the French call a "fugue." It was a symptom frequently observed in France. A number of my patients were in danger of court-martial and death for flight from the line. (Many others pretended loss of memory, but it was quite easy to distinguish such malingerers. Genuine cases are always extremely easy to hypnotize.) This case also illustrates dissociation. It is just the sort of case that Janet quotes by the dozen in his writings. It is similar to hundreds of cases one met in France immediately after the men had been under shell fire. It also illustrates mental conflict, the prolonged reaction-time of Jung, and the ignorance of the main consciousness as to what is going on below the surface. It illustrates the significant character of dreams—their symbolic nature—and how, in many cases, apparent clairvoyance is merely hysteria. This man was convinced that he had clairvoyant powers, and was (wrongly) convinced by this that his friend was dead.

Another thing I ought to have mentioned was that, just after his last attack, he was allowed in the grounds of the hospital, and suddenly thought that he saw his friend C. about twenty yards in front of him, walking along. He was delighted to see him, and hurried after him, but then noticed that he made no sound in walking, although he was wearing heavy service boots. Then he disappeared. It was an hallucination. (Extreme cases of hysteria show hallucinations of this kind. They are curable.) His dreams were of the same nature. After all his attacks he dreamed very vividly, but he could not tell me what his dreams were about, except under hypnosis. I became rather tired of hypnotizing him so often, and sometimes tried talking to him for a long time, but progress by this means was slower, and there seemed to be no theoretical or practical reason why I should not use hypnosis to accelerate the analysis. His ultimate recovery was due to this analysis and resynthesis.

Before I turn to another part of my subject I should like to make it quite clear—or as clear as I can—in what respect one may consider hypnosis a justifiable method of treatment, and in what respect not only the ordinary popular, but the ordinary medical, idea of it is wrong.

Unfortunately, the members of the Nancy school, who undertook to criticize Charcot and his disciples of the Salpêtrière, whilst making a great advance in the subject of suggestion, have hopelessly confused the question of hypnosis. I am probably speaking in a minority of one, or perhaps two, in this matter, but, as a result of my experiences in hypnotizing five or six hundred patients out of about six thousand shell-shock cases seen during the past five years, I have come to the conclusion that Pierre Janet is absolutely right when he says that only the hysteric can be hypnotized, and that hypnosis is an artificially produced hysteria. More than that, I agree with Janet that the word should be limited to the production of artificial somnambulism. (If we do this we shall get a clear system of ideas without necessarily distinguishing things which ought to be kept together.)

It is a fact that hypnosis is not the same thing as suggestion. It is a fact that one can hypnotize a patient again and again and find him no more suggestible than he was before; indeed, generally speaking, one may find him less suggestible in certain respects. It is a fact that, if one finds a patient suffering from a functional amnesia—that is, a loss of memory, of greater or less extent, due to an emotional shock—if there is no sign of physical injury, and if one has no reason to suppose that he has sustained a definite physical shock, one may then be absolutely certain of being able to hypnotize him. On the other hand, if one turns to cases, equally free from organic lesion, which do not show this tendency towards "functional" dissociation, one will find that hypnosis fails. The Nancy school—Bernheim and his followers—say that it should be possible to hypnotize 98 per cent. of one's cases, and that anyone who fails to hypnotize 90 per cent. does not know his work. Personally, I should there again agree with Janet in saying

that these people are calling by the name of hypnosis something which is very different. It is true that, in cases of shell shock seen immediately after the shock has occurred, where there is amnesia and dissociation, one can almost always hypnotize one's patients. Literally 100 per cent. of these cases could be hypnotized if one took the trouble to draw the proper distinctions and did not attempt to hypnotize cases that belonged to another category—that is, if one made one's diagnosis first; but, on the other hand, if one turns to what have been called "anxiety states"—cases of obsessions or ordinary cases of neurasthenia—these cases are not hypnotizable, if one follows Janet in his use of the word to signify the production of a second state, where the patient does not remember what has previously occurred and will again fail to remember what has just been going on unless one gives a post-hypnotic suggestion that he will. It is true that in 98 per cent. of cases one can, by using certain means, get a state of increased suggestibility, so that, if one suggests that the patient's eyelids will get heavy, that he will lose feeling in his limbs, and so on, all this will come about; but if, in cases like this, one succeeds in producing the hypnotic state, then one has either to do with a case of hysteria or one has made the patient hysterical.

Is it possible to make a person hysterical who is not so originally? That is a doubtful matter. Personally I should be inclined to disbelieve it. A person who is hysterical has probably been hysterical from his birth—it is probably an inherited form of mental weakness.

Suggestion, then, is different from hypnosis. It is used, or may be used, for a different purpose. We have advocated the use of hypnosis as a means of recovering dissociated memories, functions, etc., and also as a means of giving outlet to bottled-up emotion, to use a rather popular phrase which will have to be defined more clearly in a subsequent paper. We have not used it as a means of applying suggestion. One certainly finds, in many cases, that the more deeply one hypnotizes the patient the more suggestible he becomes, but, in other cases, one may find that suggestibility is not increased. More than that, one may find that people who are not hypnotizable may be suggestible, and that their suggestibility may be increased without any sign of hypnosis coming on. One can use suggestion without using hypnosis at all.

This view is certainly different from that of the Nancy school. It is nearer to Charcot's view, for Charcot worked extensively with hysterics by methods of somnambulism artificially produced, which is definitely the hypnotic state. Charcot was misled, however, in his ideas of the regularity of the phenomena. He thought that he could distinguish definite stages in all cases of hypnosis, including, for example, the "*attitudes passionelles*" of major hysteria. The question of suggestion with him was mixed up with that of hypnotism, although his own cases mainly illustrate the facts of hypnotism itself.

Finally, the question arises with these cases of artificial somnambulism, might not the same curative results be obtained by longer methods without having recourse to hypnosis? To a certain extent this is possible, but the results are not quite the same. In the first place, if you are going to use the ordinary method of questioning your patients again and again, and encouraging them to tell you more and more of what comes to their minds, you will certainly find that their dissociated memories will tend to come to the surface, and, as the investigation proceeds, the recovery of these memories may become more and more complete. But the method requires a much greater expenditure of time, and the memories are seldom recoverable thus in all their details. In the second place, you do not obtain the hallucinatory vividness of emotion obtained under hypnosis. The abreaction under suggestion is not so vivid. If anyone objects that by hypnotizing a patient you are making him hysterical, the reply is that he must be hysterical already, otherwise he would not be hypnotizable, and that one is justified in using a pathological state to assist a cure, if it really does so. There are medical instances of the use of vaccines, etc., which are perhaps analogous. Anyhow, the final test is the test of results, and one finds in these cases that if the hypnotizing is not repeated too frequently, and if it is carried out by someone who understands to a certain extent what is going on, and who knows that the subject is suffering from dissociation, that he must resist this tendency in the subject, and must help him more and more to a resynthesis of his personality, then the results justify its use. You do not get recurrences of the dissociation. Pierre Janet[1] has reviewed nearly two hundred of his earlier cases of major hysteria, and shows that in the vast majority of them there is no recurrence. In the cases where relapses did occur, Janet found that he had not gone deeply enough into the causes of the dissociation, that he had not brought *all* the causes to light.

As regards the many hundreds of cases that I myself sent down from the casualty clearing stations, it was, of course, difficult to get after-histories, but I was able to get such after-histories with thirty extreme cases of hysterical dissociation. These patients had all suffered from loss of voice and hearing, paralysis, intense tremors, and extensive amnesias. In all of these cases but one the reports that have come to me from the base hospitals in England admit that there have been no relapses at all; that the cure has proceeded still further under the later treatment at these hospitals; and that there has been no tendency for other symptoms to appear. In one case alone a hysterical tendency remained. It was the case of a boy whom I had treated for loss of voice, and who showed weakness of the legs at the time when he reached England. I saw from the analysis of the case, however, that he was suffering from a shock received in early life. In such cases one had not time to go fully into the past histories of the patients, as one can do now in England; one had not always the opportunity of using the method of hypnosis to discover more deeply buried memories. In the large majority of cases the patients seemed to be naturally predisposed to hysteria, but to have been quite healthy before the shell shock, and in such cases the working off of the bottled-up emotion and the resynthetizing of the mind was quite sufficient to produce a permanent recovery.

Hypnotism is a method which should only be used in cases of definite loss of memory combined with loss of other psycho-physical functions. Such cases are easily hypnotized—anyone should be able to hypnotize them. You do not need to hypnotize them deeply, only just sufficiently to recover the lost memories and produce abreaction. Then, later, you should resynthetize the patient, and always, as a matter of course, you should investigate his past history and endeavour to link up his dissociated stretch of memories with his past, and also with his more immediate present. If you do this you will find that you have made him less hypnotizable than he was when he first came to you. That is, after all, the test. If you have done real good to your patient he should leave you less hypnotizable than he was when he came to you. This, however, is not always possible. In some cases the patient is so hysterical and suggestible, his powers of mental synthesis are so weakened, that this character of hypnotizability persists unabated. In many cases, on the other hand, one can observe its gradual diminution, and, corresponding with this, one finds that the patient's general mental condition improves.

Neurasthenia and Compulsion Neurosis.

We come now to a consideration of other forms of functional disease which are described under the names of neurasthenia and compulsion neurosis. Compulsion neurosis comprises the different forms of phobias and obsessions. Pierre Janet describes these cases of compulsion neurosis, along with others, under the heading of psychasthenia, and, although his clinical descriptions are very detailed and very valuable, they do somewhat confuse the question, because he has not made a very clear distinction between what the Germans and some of the French have designated compulsion neurosis and other forms of neurosis.

First, let us consider neurasthenia quite briefly. Dejerine points out that the neurasthenic suffers from preoccupations and increased suggestibility as regards personal health. He has become worried, perhaps, by some mental difficulty in his life which he cannot adequately grapple with. He worries about it more and more—finds himself spending more and more time in thinking about it, and thinks about it in an emotional way, in a personal, subjective way. He is unable, through lowering of his powers of mental resistance at the time, to take an impersonal, objective view of the situation. He identifies himself with it more and more until it becomes a preoccupation—not an obsession; an obsession is something

that is past a certain stage towards abnormality. The emotional character of the preoccupation perhaps itself tends, on the one hand, to fatigue the patient—there is nothing so fatiguing as emotion, continual anxiety and worry—and, on the other hand, it makes him more suggestible in reference to anything bearing upon the preoccupation. If his health fails, as it is almost sure to do, if his digestion, etc., gets out of order, his attention will be directed towards this inadequate functioning of his digestive organs, and this attention will be of an emotional nature, and will increase the disorder. Thus a vicious circle is set up. The rate of digestion may perhaps be slowed down, owing to the patient's fatigued condition, with the result that the process of digestion is itself disturbed, and this disturbance then produces real intestinal disorders. The beginning of it all, however, was mental, and the cure is again mental. In order to break through that vicious circle you must attack it in the right place—namely, on the mental side. If you attack it on the physical side, you may get a temporary improvement—you may be able to reduce the acidity of the stomach, etc., but the worry will still be going on all the time, tending to set up the same condition again. Once the body has given way in any particular function, as a result of a mental trouble, that particular part of the body has become weaker, and as the mental trouble increases again it will break through in the same place. Dejerine points out that the neurasthenic is more suggestible even than the hysteric. One is inclined to agree with him. The neurasthenic is very suggestible with regard to his health.

How is a neurasthenic patient to be treated? Obviously by reasoning with him—not by ordinary moral reasoning, but by inquiring into the original cause of his symptoms. He may tell you that his stomach gave out, etc., etc., a year or two before, but you must not stop there in his history. You must go back to what happened years before, for there is often a long period of incubation with these disturbances. Then you may get a history of an emotional shock—not necessarily a sudden shock—though sometimes a sudden shock which with an hysteric would perhaps have caused a dissociation straight away, will in these cases produce an aggravation of that tendency to worry and to feel anxious that we all have. This tendency to experience anxiety is a normal tendency; it is a very important one, because in these mental cases it is so frequently exaggerated. Anxiety is an emotion which stirs us up and makes us really investigate a matter. Let us consider the typical example of an undergraduate who is preparing for his finals. Perhaps he has not been working very hard, but as the examination draws near he begins to get into a panic and really feels too ill for anything, and does not seem able to do any work. It is a very good thing for an undergraduate to experience anxiety of this sort, as it makes him take stock of his knowledge and find out what he really does know. His mind is thus worked up to meet the situation. If, again, we are faced with any definite peril, physical or mental, we have this same feeling of anxiety, which wakes us up and makes us more alert, though if it is too intense it defeats its own end. It is a different emotion from that of fear. The French have described it in very great detail (cf. *Les Anxieux*, par Devaux et Logre, Masson et Cie, 1917). This state of anxiety is exaggerated in the neurasthenic. He fails to pass on to a more ordered form of mental activity, to grapple with the situation (as, of course, all these psycho-neurotics fail to do, in one way or another), and he expends the energy which he should be using to deal with the situation in intensifying the idea still more, in keeping up the worry, and finally disturbing the state of his physical health.

If you go over the matter again with him, if you talk over his past with him and get him to look at it from his present point of view, to take an objective view of it as if he were considering it as someone else's history, you will find that he will recover. One might suggest that the result is partly due to a diminution of suggestibility—that at least is my own view. What analysis does in helping neurasthenic patients is, I believe, to diminish their suggestibility. The better they understand how their symptoms arose, and what exactly was the sequence of their mental experiences, the less suggestible they become, not only as to their own past but also as to the future. You have made them stronger personalities altogether. That is why I have suggested a word to sum up the matter—the word "autognosis," self-understanding. (The Germans talk of "Krankheitseinsicht.") What you do in these cases is to help the patients to understand how their disease arose and to understand their symptoms. Autognosis is simply a word corresponding to such insight. This does not comprise the whole method of cure, however. The patient has in many cases to be re-educated. You have not only to get him to understand how and why he went wrong in the past; he must have practice in using his energies in a different way in the future. This is the case with physical disabilities, and it is the same with mental disabilities.

Now, a method like this is obviously far superior to the method of hypnosis. No one who understood his business would dream of attempting to hypnotize a neurasthenic. In the neurasthenic, as in the hysteric, there is certainly bottled-up emotion. It seems to be a tendency in everyone's life for emotion to cling to experiences. We must all have noticed this. If we hate a person we find that the feeling of hatred clings to all sorts of things connected with that person; it links them up with the experience itself. If we make it up with the person afterwards, it is not easy at first to get rid of the emotional feeling connected with him. The same thing happens, as is well known, in the experience of falling in love. If we fall in love we experience certain sentimental feelings in regard to a certain person, and we extend this feeling to some degree to a great many things connected with him. If we afterwards fall out of love again, these sentimental feelings will continue to be connected in our mind with certain experiences, and this association only dies out very gradually. In these cases of neurasthenia too much emotion has been linked up with certain experiences, too little with other experiences. This has tended to produce conflict, strain. The more this has happened the more a person is repressed and unnatural, or mentally awkward. Certainly this characteristic of repression, of awkwardness of the mind, is definitely reduced to a minimum by an autognostic working over of past experiences, affording an opportunity for the dammed-up emotion to flow out along association channels to other thoughts, to come out in talking things over and explaining past experiences. This does not mean, however, that in the end you will have drained off all the emotion from a person's past—that certainly does not happen—you do not by releasing bottled-up emotion leave the experience without emotion at all. (You can test this quite easily in hypnotic cases.) The patient works off a lot of surplus emotion, but if you return to the same experience again later on, you will find that there is still emotion there though it is not so intense. You can test this again and again, and, after the first one or two times, you will find that the amount of emotional reaction remains constant—it will not be absent. You can go back to certain memories as often as you like, but you will always find some emotion there. It is my view that all memories of one's past life carry their own emotion with them, but it is additional emotion that has to be worked off in the neurasthenic as in any other form of psycho-neurosis.

Obsessions and Phobias.

I now turn to obsessions and phobias, called by German writers compulsion neuroses, because the patient feels compelled to think or to do certain things. A very common symptom which most of these patients exhibit is a feeling of doubt and uncertainty as to what they have just done. Perhaps they are going to bed at night and are not quite sure that they have turned off the electric light or the gas downstairs. This is a very common symptom indeed. Another very common symptom is the feeling that they must be continually washing their hands. Another is that they must read everything that is in the newspaper, or, perhaps, that they must read every advertisement that they see. I knew one man who used to read all the advertisements that he saw on his way home from work. On one occasion he decided that he would give this up, and he did manage to reach home without reading any of them, but he could not be happy until he had returned and had read them all carefully. That is, of course, an extreme case. A very simple tendency which one may find in a great many people is the tendency to walk along the pavement in such a way that, at each step, their feet avoid touching the line of demarcation between the paving stones. It is a tendency that people who are quite sane and normal may have, but

it is an incipient form of the same sort of thing. These are obsessions—the patients are obsessed by a tendency to think or to act in a certain way.

Then there are phobias, or fears—pathologically intensified fears. A very common phobia is the fear of heights. A phobia seems sometimes to be an exaggerated fear of the ordinary type, but in other cases one may find people fearing things that no ordinary person would dream of fearing.

Before turning to explanations, one ought to describe in a little more detail the state of mind of these patients. Besides the actual obsession or phobia, one has to attack in these patients a constant feeling of anxiety. Constitutional anxiety seems to be intensified in them, to be continuous throughout their lives, and to become more acute under certain conditions. To anticipate what I shall say later, one usually finds that, if one succeeds for a time in curing a patient of his obsession or phobia, he will return to this mental tendency. One of my patients felt a constant anxiety lest he should return to an obsession of some kind or other—a feeling which could not be allayed. Freud has a very interesting theory as regards compulsion neurosis. He says that the patient is really obsessed about the wrong thing. What has happened is that in the past, at some time or other, something has gone wrong with the development of his psycho-sexual life. He has done something that he is ashamed of, and which was charged with an intense emotion of a painful nature which he has tried to repress and to drive out of his mind. He has only succeeded in dissociating the emotion from the memory. The memory thus becomes harmless and walks quietly into the unconscious, but the emotion has still to be dealt with, and finds its way along association channels to other less suspicious ideas and memories. The patient, who should be worried about some guilty thought or act of the past, is now worried about something which is obviously innocent and harmless. Thus the obsession is really disguised vice. In certain cases this does work out according to theory. You do sometimes find that you gradually bring up past experiences which are out of harmony with the patient's general character, and which have been repressed. When these memories are recalled, they and the obsessing emotion link up together again, and everything is all right once more—the patient is no longer obsessed. In the case I referred to just now, my patient, who was a bank clerk, had an obsession of infection. He used also to tear up circulars, and then worry as to whether he ought to have read them before tearing them up, etc., etc. He was a homo-sexual, and I discovered that, at the age of 15, he thought that he had led a younger boy astray. He described this incident to me with great emotion, with the result that the obsession disappeared, permanently as far as I know, but there remained a general feeling of anxiety. My further treatment naturally was to carry my analysis still more deeply into his past. This analysis definitely helped me to trace back his tendency to homo-sexuality, and to bring out many other emotional experiences of his past life, and, as far as I can make out, he recovered. Some Freudians hold that all such cases are homo-sexual, but this does not seem to be correct, though it is true that a great many of them are.

In other cases the results were not of a similar nature. A case occurs to my mind of a well-educated patient, also homo-sexual, who had obsessions about the technique of his own particular work. I traced this back to a feeling of intense respect for his teacher and worry as to whether his views were out of harmony with those of his teacher. We traced this back for many years to a moment in his past, at the age of 8, when his sister, who was two years older than himself, had told him that God would punish him for every single little act of wrong-doing he committed. She told him that God was everywhere, and that He could see all the wrong things that he did. He remembered very vividly that he had gone up to his bedroom and had wept bitterly. His imagination, which was very vivid, had helped him to realize what such a situation would mean, and, as far as I could make out, that was the most important of his memories. I took him back earlier still to memories of intense affection for his mother. He had also appreciated her great affection for him, and he was always on the look-out for a love which should be as intense and as spiritual as his mother's love for him had been. This particular case has recovered from his obsessions completely, but the mechanism seems not to be quite the same as the Freudian one. There was no question of his ever having reproached himself for any specific sexual or psycho-sexual actions. The conflict was of another nature. Other mechanisms seem often to be at work. It seems to me that one cannot well lay down a single definite generalization about such cases, but one is certainly tempted to believe that a very important factor in compulsion neurosis is great exaggeration of the innate tendency towards anxiety which these patients possess. That is why analysis sometimes does not help the patient much—may even make him worse—and why suggestion treatment often does make the patient better. In the past people have often claimed to have hypnotized such cases and to have made them better by this method. Janet, however, says in his latest book that he does not understand these reports, and my experience bears him out. I do not think that these cases are hypnotizable, though one may temporarily increase their suggestibility by making them passive, and thus help them to fight down their fixed idea and also to get rid of this general tendency towards anxiety. One may keep them in this attitude whilst they regain their physical and mental health.

Nevertheless, in many cases a course of autognostic treatment, with little or no suggestion, is sufficient to produce a cure.

REFERENCE.

[1] *Les médications psychologiques.* Paris: Félix Alcan, 1919.

Observations ON SUBACUTE INFECTIVE ENDOCARDITIS.

BY

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(A Report to the Medical Research Council.)

THERE are in the United Kingdom about 80,000 men receiving pensions for some cardio-vascular affection. In the London Area there are, roughly, 8,000 pensioners with some cardiac disability, and 1,200 to 1,500 of these have structural disease of the heart. All of them come before the Resurvey Boards for re-examination and assessment at intervals of nine to twelve months. They are called up on special days, and all those with signs of structural disease are seen by a heart specialist. During the past year and a half I have acted as heart specialist at two Resurvey Boards. Such cases as required treatment or further examination I have referred to the Cardiographic Department at University College Hospital. At this clinic they receive out-patient treatment or are admitted to the wards of the hospital. Here I have been able to observe during the past year and a half a large number of selected cases presenting signs of structural disease of the heart.

The most striking clinical feature of this clinic has been the large number of subacute infective endocarditis cases that have been under observation.

From September, 1919, to June 1st, 1920, there were admitted as out-patients 159 pensioners presenting signs of aortic regurgitation, 136 with signs of mitral stenosis, and 65 with mitral stenosis and aortic regurgitation. In 30 of these the diagnosis of subacute infective endocarditis was made, and 11 were suspected as having this disease—that is, 8 per cent., and possibly more, of 360 patients with gross valvular disease had subacute infective endocarditis.

The observations which follow are based on a clinical study of 15 of these cases, together with a larger group of 40 patients with subacute infective endocarditis, whom I had under my care while in charge of the clinical services at the Sobraon Military Hospital, Colchester. Both at Colchester and at University College Hospital the conditions have been most favourable for making a careful study of the symptoms and signs which these patients presented; and through the Medical Research Council I have been able to obtain full after-histories of nearly all who were discharged from hospital. I hope to show from a study of these cases that subacute infective endocarditis is not an uncommon disease; that infection plays a most important, if not *the* most important, part in a certain number of patients with chronic valvular disease; that the signs of

an active infection are easy to recognize; and that these signs enable one to prognose with indubitable accuracy the clinical course of structural heart disease.

At a meeting of the Association of Physicians in 1908 Sir William Osler reported 10 cases of chronic infective endocarditis. He emphasized the chronicity of the disease, the clinical course ranging from four to twelve months. He noted that the fever was remittent in type, not usually high, and that during the terminal stage of the disease there was often an afebrile period. He observed that there was slight change in the character of the heart murmurs, and he indicated the special significance of tender spots on the skin, lasting from a few hours to several days, usually on the tips of the fingers and balls of the toes; these are now known as Osler's nodes. At the next annual meeting of this Association Sir Thomas Horder presented an analysis of 150 cases of infective endocarditis, and dealt especially with the chronic form of the disease; 88 of these cases he recognized as subacute infective endocarditis, the commonest form of the disease, and 18 cases of chronic infective endocarditis, a form occurring less frequently in his experience. He looked upon the remaining cases as acute infective endocarditis. In the diagnosis of the disease he laid stress upon the following signs: chronic valvular disease, the occurrence of embolism, and the presence of micro-organisms in the blood stream. This valuable contribution drew the attention of the profession in this country to the importance of recognizing the subacute and chronic forms of this disease.

Libman in America in 1912 reported cases, and stated that there were two stages of the disease—an early stage, when the *Streptococcus viridans* could be nearly always isolated from the blood if the temperature was not high; and a later stage, when the bacteria disappeared from the blood stream, and also from the valvular lesions. The explanation which he offered for this bacteria-free stage, together with the tendency for the valvular lesion to heal, was that the pathological condition at the seat of the infecting agent—that is, the valve—becomes stationary, although the clinical course of the disease is a progressive one. He attached great importance to certain signs in recognizing the bacteria-free stage of the disease. These are: a progressive anaemia, brown pigmentation of the skin, red blood cells in the urine, and enlargement of the spleen.

For reasons which I shall give later I have not found it possible to distinguish between subacute and chronic infective endocarditis, and I have therefore considered the 55 cases on which this study is based as cases of subacute infective endocarditis. Nor have I been able to divide this disease into the bacteria and bacteria-free stage, as the bacteriological examination will show.

All of the patients on whom these observations are based were soldiers who had served in the war or pensioners invalided from the army with structural heart disease. Their average age was 30 years—the eldest 51 and the youngest 19. The average duration of symptoms in 40 was fourteen months; one had been unfit for four years, and one had had a long period of military service without a single complaint until two months before death; 22 gave a history of gradually increasing unfitness, and no cause could be found to explain the onset of their symptoms; in 23, or 46 per cent., the symptoms followed after an infection; this number includes 2 cases of gas poisoning. The infections associated with the onset of symptoms in 3 were rheumatic fever, in 4 influenza, in one trench fever, and P.U.O. (pyrexia of uncertain origin) in one, dysentery in 3, pneumonia, rheumatism, cerebro-spinal fever, I.C.T. (inflammation of connective tissue), and tonsillitis in one each; in one only did the symptoms arise after a severe effort. The onset was sudden in 4, but in these no history could be obtained of a preceding infection. In 16, or 29 per cent., there was a history of rheumatic fever; in 7 the Wassermann reaction was positive; in 28 it was negative; one only gave a history of syphilis. The low incidence of syphilis might be anticipated, for syphilitic disease of the heart is uncommon below the age of 30. One would have expected a higher incidence of rheumatic fever in valvular disease of the heart in men of this age. I found in 50 cases of aortic regurgitation[1] and 50 with mitral stenosis[2] a history of rheumatic fever in 27 per cent. and 44 per cent. respectively, or an average incidence in the two groups of 35.5 per cent.

The number of cases with symptoms dating from an infection is lower in this group with infective endocarditis than that recorded in fifty cases of mitral stenosis in soldiers. In the former group the onset of symptoms occurred after an infection in 46 per cent., in the latter in 52 per cent. I make this comparison for the reason that I do not wish it to be understoood that the average period of fourteen months during which symptoms were present represents the course of the disease. There is no striking difference in the symptoms or the clinical course up to the time they come under observation between chronic valvular disease without signs of infection and subacute infective endocarditis. There are exceptions, I admit, when embolic symptoms develop early. I do not therefore feel justified in stating that the course of the disease dates from the onset of symptoms, and for this reason I have not subdivided infective endocarditis into the subacute and chronic types.

Symptoms and Signs.

The symptoms complained of were breathlessness on exertion, palpitation after slight effort or when excited, pain in the region of the heart or left costal margin, sharp and stabbing or dull, and felt with slight effort, but rarely anginal in character or distribution. Many gave a history of giddiness after effort or with change of position; a few had fainting attacks. Exhaustion, lassitude, headaches, sweating, and loss of weight were common complaints. Tender finger-tips or painful swellings of the hands or feet were not often complained of. Chills were infrequent, although a sense of feeling hot and cold was noted in a large number. Symptoms of embolism were present in a third of the cases. The large majority had symptoms of heart failure while under observation. In a few the clinical picture was one of toxaemia, and the symptoms were more uraemic than cardiac.

I have treated briefly the symptomatology of these cases. The history of a large number is that of chronic valvular disease. During the early period of the disease the symptoms are those felt after effort; later, with the onset of heart failure, those of venous engorgement were added. Cerebral embolism is not an infrequent occurrence during the clinical course of mitral stenosis. Embolic symptoms are more often observed in infective endocarditis. Embolism may occur although an active infective process cannot be discovered, and infective endocarditis may be diagnosed in the absence of symptoms which we recognize as embolic in origin.

The symptoms may be a guide, but it is upon the signs that we must rely in diagnosing this disease. In all but nine of the fifty-five cases signs of venous engorgement were present at the time of the first physical examination. The degree of venous stasis varied from fullness of the veins of the neck with crepitations at the bases of the lungs and doubtful enlargement of the liver, to oedema of the extremities and general anasarca. It was the rule to see signs of heart failure gradually increase until death. In some the dropsy was more renal than cardiac in its distribution. In these the face was bloated, the breathing Cheyne-Stokes in character, and the cyanosis slight. Often the picture was that of cardiac failure with chronic parenchymatous nephritis added. In a few the venous engorgement was slight with marked signs of toxaemia, delirium, coma, muscular twitching not unlike chronic nephritis, with urea retention.

Of the nine cases without signs of cardiac failure two were patients who developed infective endocarditis while under observation, one died unexpectedly of acute heart failure, one a doubtful case, two died suddenly of cerebral haemorrhage, and three were discharged from hospital and died from some unknown cause. It is probable that the early cases will develop signs of cardiac failure as the disease progresses, and it is not at all unlikely that had the course of the disease in three not been interrupted by cerebral haemorrhage and acute heart failure they soon would have presented signs of venous engorgement. It was the rule, then, for these patients to have signs of heart failure at the first examination.

Enlargement of Heart.—In all but two the heart was enlarged at the first examination. One of these died three months after the onset of symptoms with increasing heart failure and signs of aortic regurgitation and mitral stenosis. The other had symptoms for six months at least and died after discharge from hospital from some unknown cause. In 12 the heart was much enlarged—that is, three finger-breadths or more to the left of the nipple line. In 17 there was moderate enlargement—two fingerbreadths to the left of the nipple line; and with the remaining 17 the left border was definitely to the left of the nipple line, but not more than one fingerbreadth.

I have given the left border of the heart as the index of cardiac enlargement. Enlargement of the right ventricle is difficult to determine by palpation or percussion. In hearts with mitral stenosis or aortic regurgitation I have found, on weighing separately the ventricles, that general increase in weight is the rule, although hypertrophy may predominate in one or the other ventricle.[3] It is safe, then, to consider the whole heart enlarged when the left

border is felt definitely one fingerbreadth or more to the left of the nipple line.

The most common type of valvular disease in these cases was aortic regurgitation. In thirty-three there were signs of aortic regurgitation only, in fourteen aortic regurgitation and mitral stenosis, in two there was aortic regurgitation and doubtful mitral stenosis, in two aortic stenosis, and in four signs of mitral stenosis alone were recorded. It is difficult to estimate the duration of this disease from the clinical signs of valvular disease alone. Mitral stenosis can develop rapidly, and aortic regurgitation may have existed for years. It does not take long for the infecting agent to damage an aortic valve sufficiently to cause regurgitation, and vegetations may in a short time obstruct the aortic or mitral orifices. It takes years for valvular stenosis to develop when the process is one of sclerosis; vegetations may obstruct a valvular orifice within a few months. Fibrous contraction leading to an aortic reflux is a slow process; weeks are sufficient to produce aortic insufficiency when the infecting agent leads to ulceration.

Hypertrophy develops slowly; dilatation may occur in a few hours. It is often difficult, sometimes impossible, to assess the degree of hypertrophy and dilatation, when the two are associated. It is probable that a heart two fingerbreadths or more to the left of the nipple line, and with little or no stasis, weighs 15 oz. or more. Such a heart may be dilated; it certainly is hypertrophied. Clinically there were in the majority of these patients signs of chronic heart disease. Enlargement of the heart in men under 40 years of age is usually associated with valvular disease. We have therefore strong clinical evidence that most of these patients had chronic valvular disease.

The exercise tolerance was poor in all; this is to be expected, since all but nine had venous engorgement. The average minimum and maximum pulse range at rest was 88 to 110. An exercise test was given in ten; this consisted of a brisk walk up and down twenty steps twice. The average pulse rate at rest in these was 135, immediately after the exercise 181, and 137 at the end of two minutes.

Fever was present in all but one. The average range of temperature was not high. A daily rise to 100° for several weeks or longer was the rule; less frequently to 101° or 102°. In a few the temperature was remittent, rising each day to 104°. In a large number afebrile periods of one to four weeks were recorded. One ran a subnormal course throughout the whole period of his stay in hospital. It was common to see a normal temperature for a long period interrupted by an occasional twenty-four hour rise to 100° or 101°. It was often observed that with increasing heart failure the patient became afebrile, or a subnormal temperature developed; rigors were recorded in a few; sweating was more profuse when the temperature range was high.

It was the rule for these patients to have a toxic appearance. The complexion was usually sallow; the face having often a muddy or café-au-lait colour; in some the pallor was sufficient to suggest a primary anaemia. Occasionally there was a ruddy complexion, giving a healthy look to the patient.

Blood counts were done in thirty-six cases. The average number of red blood cells in these was 4,407,000, the haemoglobin 70 per cent., and the leucocytes 1,080. The lowest blood count recorded was 2,000,000, with 20 per cent. haemoglobin and 16,000 leucocytes. The highest count was 5,790,000, with 87 per cent. haemoglobin. The highest white cell count was 22,000. The average number of polymorphonuclear leucocytes in twenty-four was 64, and of lymphocytes 33. With an average colour index of 0.85 the blood picture was that of a chlorotic type of anaemia of moderate degree.

The appearance of these patients often suggested a greater degree of anaemia than the actual blood examination revealed. The colour of the patient and the blood picture are important signs of an active infection of a subacute or chronic type.

The Spleen was enlarged and easily palpable in 48; in 5 no mention was made of its size; in 2 it could not be felt. In some it was hard and felt three or more fingerbreadths below the costal margin; in others it was soft and not so easily palpable. Hyperaesthesia in the left hypochondrium sometimes rendered difficult palpation of this organ. Enlargement of the spleen in chronic valvular disease with heart failure is often ascribed to venous engorgement. In these patients it was palpable in some when signs of venous engorgement were absent, and in many with only a moderate degree of venous stasis. Without attempting to maintain or disprove this explanation, it is a fact that the spleen was known to be enlarged in 48 cases, and in my experience it is uncommon to find this organ increased in size in chronic valvular disease with venous engorgement when the diagnosis of subacute infective endocarditis has not been made. Infarction is another cause given for enlargement of the spleen in heart disease. It is true that infarcts were found at autopsy in many of these cases, but in not a few they were absent. Venous engorgement and infarction are not the only causes of enlargement of the spleen. It is common knowledge that the spleen enlarges during the course of many infectious diseases, as in typhoid and malaria. I prefer to consider splenic enlargement in this disease as often a sign of an active infective process.

Clubbed finger-tips was one of the most striking clinical features of the disease in these patients. In cardiac affections it has long been associated with congenital valvular disease, and it is often observed in chronic disease of the lungs, particularly in association with bronchiectasis. Many explanations have been given for this sign, but the cause is not known. It is usually ascribed to a toxaemia due to deficient aeration of the blood supplying the fingers. In 25 no mention was made of clubbed finger-tips. These were cases under observation at Colchester, at a time when our attention had not been drawn to the importance of this sign. All the remaining cases and 25 others not included in this series presented this sign. In some the degree of clubbing was slight; in others most marked, giving a striking appearance to the fingers. Whatever may be the cause the frequent occurrence of finger clubbing gives us a most important sign in the diagnosis of subacute infective endocarditis.

Petechiae were observed in 40; no mention was made in 6; in one it was doubtful whether any were present; and in 8 none were seen while in hospital. These small dark red spots were most commonly situated in the skin of the neck, upper part of the chest, and conjunctivae of the lower eyelids; they may, however, occur on the back, abdomen, or extremities. They are small haemorrhages with a yellowish pin-point centre, and are probably the result of an embolus obstructing a small arteriole. They often occurred in crops lasting a few days, and then gradually faded away. They are of a dull red colour at first and later become brown; they are not palpable, do not disappear on pressure, and are thus easily distinguished from small naevi.

Osler's nodes—small tender and painful spots of nodular erythema on the hands and feet, disappearing within a week—were observed in 7 cases. These, too, are embolic in origin; the pain and tenderness which is characteristic of them may be due to the small amount of subcutaneous tissue and highly developed tactile sensation of these parts.

Emboli obstructing larger vessels were noted in 7. The central artery of the retina in one caused temporary loss of vision; another was admitted to the wards with an embolus blocking the posterior tibial; in a third there was an obstruction in the lower third of the brachial; a mycotic aneurysm of the radial, with a large pulsating tumour of several months' duration, was observed in a fourth. The frequent occurrence of petechiae in these cases makes them a most important sign of an active progressive infection. When petechiae are observed in association with gross valvular disease, pallor, enlarged spleen, clubbing of the finger-tips, the diagnosis of infective endocarditis may be made with certainty.

The urine in 34 was albuminous—in many a trace; in others with much venous engorgement a larger quantity was found. It was the rule to find red blood cells and granular casts in the urine when albumin was present; in a few there was macroscopic blood. The urinary reports in 13 showed no abnormalities; in 8 no analysis of the urine was recorded.

Diagnosis and Pathological Findings.

A bacteriological examination of the blood was made in 24 cases. Micro-organisms were grown in 11, or less than half. Streptococci were found in 8; streptococci and staphylococci in one; staphylococci alone in one; and a

Gram-positive diplococcus in one. In every instance the diagnosis of infective endocarditis was made without the aid of the bacteriological report. It was based upon signs of gross valvular disease—aortic regurgitation or mitral stenosis associated with pallor, enlargement of the spleen, petechiae, and in many clubbing of the finger-tips. There may have been no fever at the time of the examination, petechiae may not have been found, and the bacteriological examination of the blood was often negative. The diagnosis was correct, as the *post-mortem* findings proved in 22 cases.

Of the 55 cases, 44 are known to have died with an average duration of symptoms of fourteen months; no information could be obtained from 8 after discharge from hospital; three of these had no signs of venous stasis and one was a doubtful case. The cause of death in 26 was gradually increasing heart failure, acute heart failure in 5, the sudden onset of auricular fibrillation and death in a few hours in one; 3 died following a hemiplegia, one from pulmonary embolism, and one from a streptococcus pneumonia.

The pathological changes revealed at autopsy were typical in every instance of subacute infective endocarditis. There were recent vegetations, and these were usually engrafted on an old valvular lesion with extension in many with mitral disease on to the posterior wall of the left auricle, and on to the septal wall of the left ventricle in those with aortic disease. Sometimes myocardial degeneration was easily recognized. The spleen was enlarged in all, with old or recent infarcts in many. In others they were absent, and the organ was congested and swollen as in typhoid fever. Nephritis was always noted when sections of the kidney were made; usually of the parenchymatous type, but in all the glomeruli were more or less replaced by fibrous tissue. Infarcts were found in the kidneys of many. The other pathological changes were those found after death from cardiac failure.

Conclusions.

Subacute infective endocarditis is not a rare disease. It is seen in 8 per cent. of patients with signs of gross valvular disease attending a special heart clinic.

The signs are easy to recognize. In the diagnosis chief reliance should be placed on the following signs: Gross valvular disease, pallor, enlarged spleen, and clubbing of the finger-tips.

Aortic regurgitation is the type of valvular disease usually seen in this disease; it is rare to find the mitral valve alone involved.

The course of the disease from the onset of symptoms is usually less than fourteen months; death may occur within two months of the onset of symptoms.

A bacteriological examination of the blood is useful in confirming the diagnosis. Without such an examination the diagnosis may be made with certainty.

The disease is always fatal.

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[1] Cotton: Observations on Aortic Disease in Soldiers, *Lancet*, September 13th, 1919. [2] Cotton: Observations on Mitral Stenosis in Soldiers, BRITISH MEDICAL JOURNAL, December 27th, 1919. [3] Cotton: Observations on Hypertrophy, *Heart*, vi, 217.

ON THE ACTION OF TARTRATE OF ANTIMONY IN INTRAVENOUS INJECTIONS:

THE "PERMEABILITY" OF BILHARZIA OVA AND SOME PROTOZOAL ORGANISMS.

BY

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THERE is a fact to be borne in mind regarding intravenous injections of antimony tartrate—namely, that the drug appears in the blood stream as antimony tartrate and not as a complex derivative of antimony, produced by contact with gastric and other secretions and elaborated by digestive glands, as is possibly the case when tartar emetic is given by the mouth.

Whether antimony tartrate remains as such as it circulates in the blood or whether it combines with a constituent in the blood stream we do not know, but it would not be unreasonable to think that a stable and simple compound such as antimony, potassium (or sodium) tartrate remains in solution in the blood until it is dealt with by the kidneys, liver, bowels, and skin for the purpose of storing or of eliminating it.

It does not seem to be necessary, therefore, on the face of it, in order to explain the action of antimony tartrate in bilharzia disease, to introduce the complicated picture of antibodies and indirect action on the parasite. For living bilharzia ova are certainly porous and permeable, pervious and foraminous, whether they be imbedded in the tissues or free in urine. The miracidium living inside the chitinous shell is aware of what is taking place in the atmosphere around the shell.

In the specimen glass, and we may assume, I think, in the bladder also, the concentrated urine would be as deadly to the miracidium without the protection of the shell as it is to other forms of animal life. The miracidium inside the shell, it is true, may, and often does, turn right round in its shell in the undiluted urine (the preliminary step to hatching),* but it does not often hatch. But if bilharzia urine be diluted ten or eleven times with water, and the temperature maintained at about 130° F. (which is not hotter than water exposed to the sun in Egypt), hatching takes place in four or five minutes.

The miracidium inside the shell, in other words, is in touch with the world outside the shell, and is ready to respond to favourable local conditions; this communication can only be explained by supposing the shell to be permeable and porous.

There are several other facts which prove the permeability of the bilharzia ovum. In hunting for helminths or ova in faeces at Khartoum Civil Hospital we are in the habit of using an ounce of 40 per cent. formalin to the specimen. This acts as a deodorant and facilitates the examination in various ways. Now we (Mr. Newlove and myself) found that this formalin sterilized the bilharzia ova when present, but that it left ankylostoma ova unharmed. This fact suggests that the ovum of bilharzia is permeable and allows the formalin to penetrate it and kill the miracidium inside; it also indicates that all ova are not permeable, and as an example of an impermeable shell we have the ankylostoma; there are biological reasons for permeability or otherwise, but we are only concerned in the fact at present.

There is, therefore, no *a priori* reason why the bilharzia shell should be *im*permeable—in fact, certain biological facts can only be explained on the supposition that it is permeable. By direct experiment *in vitro* we are able to show that bilharzia ova are permeable to antimony tartrate which kills the miracidium within the shell. Mr. Newlove and I found at Khartoum that, if $\frac{1}{10}$ c.cm. of urine laden with ova was diluted with 6 c.cm. of tap water at 130° F., ova hatched out in four or five minutes, and most of the ova in the specimen were hatched out within one hour. If one grain of antimony tartrate were added, before the hatching, only about half the ova would hatch, a good many were found dead, half in and half out of the shell, or, in other words, they appeared to have survived the hatching process only a short time as they were seen lying dead by the side of the evacuated shell, like corpse and coffin. The more resisting miracidia which survived and which were swimming about, did not swim nearly so long as miracidia hatched in plain water. The addition of about 2 grains of antimony tartrate to the 6 c.cm. just about stopped the hatching process altogether.

Now if to a solution of about 6 c.cm. wherein were hatched miracidia swimming about, $\frac{1}{2}$ grain of antimony tartrate be added the movements of the miracidia were markedly changed. Normally they dart about with a pulsating movement, the sharp non-ciliated end forwards, revolving all the time on their own axis. This characteristic movement no doubt assists in the process of penetrating the snail, though it is not the engine of penetration. On the addition of the antimony the miracidia slow down, they wriggle, they writhe: they have, seemingly, convulsions, and, assuming a thicker and shorter form, they

* A bilharzia miracidium is as a general rule found with its head end in the blunt end of the ovum—that is, away from the spike, normally in *fresh* urine. Before the hatching takes place it turns right round in the shell; it escapes eventually by smashing a way through the shoulder, the broadest and weakest part of the shell. It is a curious fact that sometimes bilharzia patients, in order to "flush out the kidneys," drink a glass or two of beer or two or three cups of tea. This dilutes the urine and sometimes causes some of the ova to hatch, inside or outside the bladder, without further dilution of the urine.

die. Some appear to escape, but the period of activity is considerably diminished by the antimony in every case.

In making these observations with bilharzia the variation in resisting power of the different individual ova or embryos or miracidia was striking. Some ova hatched very much sooner than others under normal conditions, and some miracidia appeared to be more active than others, and some appeared to have a longer life, this quite apart from any accidental external circumstance such as becoming entangled in a wisp of mucus.

Therefore, judging from direct experiments *in vitro* with antimony tartrate, and from clinical results, one arrives at the conclusion that antimony tartrate has a profound and direct specific effect on bilharzia in all its stages. It kills the parent worm *in situ* in the portal tributaries.* It pentrates the ova as they lie deposited in the tissue wall and kills the enclosed embryo. It has also the power of killing the free miracidium.

As no experiments have been made *in vitro* on the action of the antimony tartrate on the adult worms the matter cannot be considered settled. I have not had the opportunity of making them myself, but it would not be difficult to do the tests, obtaining the worms from animals experimentally infected.

We (Mr. Newlove and J. B. C.) concluded (speaking under correction and from clinical evidence only regarding the parent worms) that:

1. The parent worms are the most readily affected by antimony.
2. The ova next.
3. The miracidia are the most resisting of the three to antimony tartrate.†

There are, therefore, ample grounds for believing that the action of the antimony tartrate introduced into the veins is a direct one on the ova, and probably on the adult worms also.

Continuing the doctrine of "permeability" and "direct action" further, it would appear likely that it also applied to the action of antimony tartrate on certain protozoal diseases; for instance, we know that it has a specific action on the Leishman-Donovan body in all its clinical manifestations,‡ and that it has a decided curative effect in trypanosomiasis, though that disease is more resisting to antimony tartrate than either leishmaniasis or bilharziasis. I am inclined to think that the enclosing membrane of the Leishman-Donovan body is also "permeable" (more permeable and less resisting than the enclosing membrane of trypanosome). If, in taking a specimen of splenic blood from a kala azar patient for the purpose of diagnosis, there be water in the syringe the bodies will not be found; they are hygroscopic They take up water and disintegrate. The logical way of explaining this fact is, I think, that the shell or limiting membrane of the body is "permeable."

Permeability of the confining membrane may also be the explanation of the fact that in kala-azar it is extremely difficult to find the bodies in the peripheral blood. It may be that it is so delicate and sensitive to external conditions owing to the porosity of the "shell" that when it arrives in the peripheral blood exchange takes place between inside and outside "shell," and the body disintegrates. This is conjecture, but it is a fact which requires explanation that occasionally, though not often, the Leishman-Donovan body is found in the peripheral circulation.§ "Permeability" may also explain the difficulty in finding the body in tissues *post mortem*; so responsive is it inside its "shell" to ex nal influences that it disintegrates and disappears as soon as the patient dies.

The four typical periodical rises of temperature in a twenty-four-hour kala-azar chart may possibly be associated with the periodical destruction in the peripheral blood stream of the Leishman-Donovan bodies as they escape from the tissues where they have their habitat (liver, spleen, bone marrow, etc.).

There is a clinical fact also both in kala-azar and in trypanosomiasis which suggests direct action, and the breaking-up of the Leishman-Donovan bodies and trypanosomes with the introduction of the cell contents thereby liberated into the blood stream. If antimony tartrate is given to a patient with kala-azar or sleeping sickness the initial effect of the first dose or two is great aggravation of constitutional symptoms, shown by a sudden rise of temperature, etc. This is possibly due to the direct action of the drug entering and breaking up the organism, thereby liberating the toxins, etc.

Advancing this argument of "permeability" a step further, we find that parasites of "so many and so varied a nature" (Low) respond to antimony tartrate. It might be thought: It is a specific for bilharzia; why not, therefore, for other flukes and parasites, such as filaria, guinea-worm, and intestinal worms? it is a specific for leishmaniasis and trypanosomiasis, therefore why not for the plasmodium of malaria and the amoeba of dysentery? The answer to this may be found in the issue as to the direct action of drugs on the organism, and the question whether or no the organism is "protected" by a covering or membrane which is "permeable" to the antimony.

The following is a short statement made by Mr. N. H. Johnson of the Tropical Diseases Clinical Laboratory, from observations made independently by him on ova obtained from patients attending the Ministry of Pensions Clinic for treatment:

In the course of my experience during the past six months, examining the specimens of urine of bilharzia patients under treatment, I have discovered that antimony tartrate not only kills the miracidium but completely disorganizes the ova, which become shrivelled, blackened, and granular; I have repeatedly tried to hatch the treated ova, but without success. I have found that by adding 1 grain of antimony tartrate to 20 c.cm. of diluted urine at 37° C., with abundant ova, after twelve hours' incubation the ova appeared to be alive, but only a sluggish movement was noticeable. On adding 2 grains of antimony tartrate to 20 c.cm. of diluted urine at 37° C., on twelve hours' incubation the ova were completely sterilized, blackened, and granular, and I found it absolutely impossible to hatch these out. Not only do the ova appear to be blackened, but the surrounding débris and crystals are blackened; this, however, does not affect the blood corpuscles. Each of the above experiments has, of course, been worked with controls. In hatching out the untreated ova the miracidium revolves inside the shell prior to hatching until it finds a weak part—generally the centre of the lateral part of the shell—which it ruptures and escapes.—N. H. J.

In conclusion, I have to thank Dr. Broughton-Alcock, who has kindly given me the necessary facilities for carrying out observations at the Laboratory of the Tropical Diseases Clinic, Ministry of Pensions, London.

*In the only case verified by *post-mortem* examination, made on a man who before was heavily infected with bilharzia and who died of influenza and pneumonia a short time after his injections had been complet d (gr. 33), the man was apparently cured of his bilharzia, for no parent worms were found in the portal vein.—*Journ. of Trop. Med. and Hyg.*, April 1st, 1919 (Archibald and James).

† The miracidium needs more formidable protecting paraphernalia to enable it to survive the varied conditions of life it will experience in the Egyptian puddle where it should be hatched.

‡ Oriental sore, naso-oral leishmaniasis, kala-azar.

§ The spleen is, practically speaking, a large blood swamp; openly connected with the arteries and veins, it is impossible to think that the Leishman-Donovan body does not get very frequently into the general circulation, and it needs explanation why it is so seldom found there.—J. B. C.

ANTIMONY IN LEPROSY.

BY

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In view of the remarkable improvement that was shown in some leper patients whilst undergoing a series of intramuscular injections with Oppenheimer's colloidal preparation of antimony (oscol stibium) in March of this year, I decided to give the treatment a further trial.

A report of the treatment appeared in the BRITISH MEDICAL JOURNAL for July 17th, 1920, page 76, where it was stated that the course was brought to an untimely end because the Union Government was unprepared for these leper patients to remain under observation in Natal. Six months after treatment was discontinued a letter was received from Madras to say that one of the lepers, David, was enjoying the best of health, carrying on his ordinary occupation in India, and was complaining of no symptoms requiring medical attention.

Two more lepers were admitted to the dépôt hospital of the Indian Immigration Board on August 23rd.

Sital stated that he had suffered from the condition for four years, during which time he had lived at Weenen, in Natal. The fingers were stiff and the extremities covered with a blood-stained discharge. All the fingers and both thumbs were discharging, and he had lost the nail of one finger of the right and two fingers of the left hand. All the toes were discharging,

and only the small stump of one of the toes remained on the right foot. The face was free from signs of leprosy.

Oscol stibium 2.5 c.cm. was injected into the right deltoid muscle on August 23rd, 4 c.cm. on the 24th, and 5 c.cm. on the 25th and 26th. As there was some diarrhoea on August 27th and 28th, the injections were discontinued until August 30th, when 4 c.cm. were given without ill effect.

On August 31st the patient was feeling very well, and all the ulcers were dry. No further treatment has been given. On September 20th the extremities were still free from discharge, and all the stiffness had gone from the patient's hands, which he is able to use freely.

I asked Dr. J. Mackay, who has had an extensive experience of leprosy, to see this case, and he was agreeably surprised to see how effective the treatment had been. In his opinion there was no doubt whatever that the departmental medical officers had diagnosed the condition correctly as advanced leprosy. The case has also been under observation by Dr. Kerr Cross and Dr. G. L. Bonnar, the Indian medical officers of Durban.

On October 18th a swab was taken from the nasal secretion, as no discharge was available, and submitted to Dr. W. A. Murray, the Government pathologist at Durban, who reported the entire absence of *Bacillus leprae*.

Naukaklia was admitted to the Indian Immigration Hospital on August 19th in a very advanced stage of the disease. She was very frail, and not expected to live long. The hair was badly infested with nits. She was very emaciated, and her fingers and hands badly ulcerated. She had lost one digit of the right thumb, two digits of the right index finger, and the top digit of the middle finger of the left hand. The toes were not affected. The whole of the back of the right hand was covered with an extensive discharging scab, possibly the result of a burn. The discharge on several of the fingers was bloodstained. In several places bare bone was showing on the extremity of the fingers.

Oscol stibium 2.5 c.cm. was injected intramuscularly on August 23rd, 3.5 c.cm. on August 24th, and 4 c.cm. on August 25th. This caused diarrhoea for two or three days, and the injections were discontinued.

On August 29th the ulcers were nearly all dry, and on September 2nd, when I asked Dr. Kerr Cross to see the case, the ulcer on the back of the right hand was covered with a fairly clean scab showing evidences of rapid healing. On September 6th, though bare bone was still protruding through the ulcers on the extremities, all the ulcers were dry, and the scab on the right hand had come away, leaving a healthy dry skin.

On September 20th the extremity of one finger showed slight discharge and another ulcer on the hand looked unhealthy, so oscol stibium 2 c.cm. was injected intramuscularly. All the other ulcers were remaining dry, the condition of the scalp was much better, and all trace of diarrhoea had gone, though the woman was remarkably frail, somewhat hysterical, and took little food.

On September 23rd, as one little finger-tip was again moist with discharge, oscol stibium 3 c.cm. was injected intramuscularly. Since then no further injections have been given, for all the ulcers have remained dry. The patient is still very weak, and not expected to live much longer; but all signs of active leprosy conditions have disappeared.

In commenting on these two leper patients Dr. G. L. Bonnar, the acting medical officer, Durban Indian Circle, states:

"On admission both were showing active signs of the disease, with numerous ulcers on the fingers and toes. Although no further treatment has now been given for over a month there has been no recurrence of the signs of leprosy, and the ulcers have completely dried up."

TWO CASES OF DOUBLE GLIOMA RETINAE.

BY

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THE following two cases of double glioma retinae were admitted to the Royal Eye Hospital, Manchester, under the care of Dr. Horsman McNabb. Both cases came under treatment about the same time.

CASE I.

S. R., aged 12 months, was admitted on March 23rd, 1920. According to the mother's statement, the child seemed to notice things up to the age of six months, but since then had "been different." In November, 1919, about four months before admission, he had measles and chicken-pox. Thereafter the mother noticed he had a "glide," and about two weeks before bringing him to hospital she saw a white speck in each pupil. There was one other child in the family, a boy aged 5, said to be quite healthy.

Condition on Admission.—The child was well nourished. There was a concomitant convergent strabismus of the right eye. Both anterior chambers were shallow. The right pupil was dilated and inactive. The left was smaller than the right, and reacted sluggishly to light. In both eyes a whitish tumour was visible by oblique illumination, and blood vessels could be seen on the surface. The tension in the right eye was about + 1, and in the left normal.

Operation.—Under general anaesthesia the right eye was removed on March 24th, 1920, and the left eye on the following day. In both cases the optic nerve was cut as far back as possible. Recovery was uneventful, and on September 17ths 1920, the child was still quite well.

CASE II.

Henry H., aged 3 months, was admitted on April 16th, 1920. The mother had noticed "both eyes glassy" for five days before she brought the child to hospital. There were six other children in the family alive and well. The fourth-born, however, had died at the age of $4\frac{1}{2}$ years from "meningitis with fits."

Condition on Admission. — Both anterior chambers were shallow. The pupils were dilated and inactive. By oblique illumination a large whitish vascular tumour mass could be seen through the pupil in each eye. Tension *plus* in both eyes. The child's general condition was not very good, and he was fretful.

Operation.—Under general anaesthesia the eyes were removed successfully on April 17th and 18th.

On May 25th there was still a slight discharge from the sockets. The child was fairly well, his general condition being better than on admission. In September there was still no sign of any recurrence.

PATHOLOGICAL REPORTS.

S. R. A typical glioma retinae, with well-developed rosettes. The blood vessels are better developed than in the other case, and necrosis is much less in evidence. It seems a decidedly less rapidly growing type of tumour than the other.

Henry H. Both eyes show a similar condition. The tumour is glioma retinae, but showing a good deal of necrotic change, and in general a sarcomatous type of growth, with a perithelial arrangement of the special cells. The characteristic rosettes are present. On the whole, the tumour suggests rapid growth and malignancy.

These two tumours are of interest as examples of a comparatively uncommon condition—namely, glioma retinae involving both eyes simultaneously. Collins and Lawford found both eyes affected in 12 out of 60 cases of glioma, and Marshall in 12 out of 32.[1] In cases of this kind the involvement of the second eye occurs more commonly months or even years after the first, according to Parsons.[1] In both these cases not only were both eyes affected, but the disease was almost equally well developed in both eyes at the same time.

In regard to prognosis, early diagnosis is of great importance as leading to timely surgical treatment. There seems to be general agreement that if the affected eye be removed before perforation by the growth, the prognosis is fair, but that in the absence of operation or in the presence of recurrence the outlook is practically hopeless. Immediate enucleation of the affected eye is therefore essential.

In the cases described diagnosis was a comparatively simple matter. The appearance of the tumours and the shallowness of the anterior chambers were characteristic. The increased tension supported the diagnosis of tumour, and the ages of the patients were in favour of the tumour being glioma, which is an affection of early childhood.

There was no sign of extraocular extension of the growth, and six months after operation the children were still quite well.

My thanks are due to Dr. Horsman McNabb for permission to publish an account of the cases, and to Professor Dean and Dr. Dible of Manchester University for the pathological reports.

REFERENCE.

[1] J. Herbert Parsons, *The Pathology of the Eye*, London, 1905.

THE late Dr. Paul Redard, director of the Furtado-Heine Dispensary at Paris and author of valuable works on orthopaedics, has bequeathed a sum to the Académie de Médecine for founding a prize of 5,000 francs to be awarded every five years for the best work on orthopaedic surgery that has appeared in the meantime. The competition is open to foreign medical men. Communications should be sent to the Secretary of the Académie de Médecine.

MR. HENRY KIMPTON announces for early publication new editions of Dr. Eric Pritchard's *Infant Education* and Dr. H. S. Crossen's *Operative Gynaecology*.

THE TREATMENT OF ASCITES BY DRAINAGE.

BY

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THE two following cases may be of some interest in showing that an unexpected result may sometimes follow a measure of treatment undertaken as a forlorn hope.

CASE I.—*Hepatic Cirrhosis: Drainage: Recovery.*

A middle-aged estanciero, a "free liver," entered the British Hospital in September, 1917, with great distension of abdomen and anasarca of the lower extremities; the heart sounds were distant and feeble and the pulse 130; there was double basic congestion and dyspnoea with cyanosis; the urine was scanty and full of albumin and the hepatic dullness was almost obliterated. There was an ominous sign of the past—diffuse rupial scars.

To relieve urgent distress paracentesis was immediately performed, and six litres of ascitic fluid drawn off; on deep inspiration the liver could then be palpated beneath the costal margin; it felt as hard as the edge of a table but was not bossed. A mixture of potassium citrate, sodium bicarbonate, and ammonium citrate was given every four hours, along with pill "Baly," thrice a day, compound jalap powder ʒj at night, and magnesium sulphate ʒj each morning. An exclusive milk diet was prescribed.

Some relief was experienced for a few days, but the urine continued subnormal in quantity (20 to 30 oz. daily); by the tenth day he had filled up again, and general symptoms had reappeared. Tapping was repeated and 7 litres of similar liquid evacuated. A week later things were as bad as before, and as he appeared to be rapidly failing I tapped him with our largest size trocar, and, when some 6 litres of fluid had escaped, I passed a medium size soft rubber (Jacques) catheter, with the round end cut off, through the cannula into the abdomen; the cannula was coaxed out without dislodging the tube, and the latter was secured to the small skin wound by a silkworm-gut suture, a long tube was attached, and drained into a bottle at the side of the bed. A free flow (4 litres) ensued for three days. It ceased on the fourth evening. On the sixth morning the sister reported a marked increase in the output of urine (80 oz. in twenty-four hours). The tube was retained until the twelfth day, but nothing more exuded. The medical treatment was continued all the time; the daily excretion of urine varied from 70 to 90 oz.

Much to our surprise, this gentleman had a rapid convalescence—the pulmonary congestion quickly disappeared, the heart sounds became appreciable, the pulse slowed down gradually to 80, and only a faint trace of albumin remained when he left hospital three weeks later—in a violent hurry to get back to supervise the shearing.

Two months later he returned nominally to report himself, but in reality to place himself in the hands of a tailor for a complete new outfit. He was looking extraordinarily well, with quite a smart figure and debonair manner. I saw him again, a year afterwards, in good condition, before he retired.

CASE II.—*Cardiac Hepatic Block: Incompetence: Ascites: Drainage: Temporary Recovery.*

S. M., aged 50, an Italian, had been treated in hospital six times during the past three years for broken down compensation, irregular action of the heart, orthopnoea, and waterlogged legs and scrotum; the condition was relieved each time by morphine injections, digitalis, purgation, milk diet, and rest of a kind.

In October, 1917, he presented himself with enormous distension of the belly and slight oedema of lower extremities, without any apparent serious cardiac distress, though the heart was, as usual, irregular. He was tapped on the day of admission and 8 litres of ascitic fluid removed. Seven days later he insisted on returning to work (founder). Three weeks afterwards 6 litres were removed, and he disappeared three days later. Ten days afterwards he came again in the same state. As it was futile to attempt to impose reason on such an impossible fellow, I determined this time to do something that would anchor him in bed for some weeks—I tapped him with a large instrument, as in the previous case, and inserted a similar peritoneal drain. The flow ceased on the sixth day, and again it was noted that there was a sudden coincident increase in the daily quantity of urine (to 60 oz.). On the following day when I entered the ward I saw him sitting on the side of his bed; he kept on demanding the withdrawal of the tube, but I refused. After I retired he dressed himself and went out to the garden, and repeated this until the twelfth day, when the sister removed the tube (no liquid had passed since the above note on the sixth day). He left hospital the same afternoon.

Two months later he met one of our male nurses and told him to "tell Il dottore that I am hard at work and enjoy my vino the same as ever." A short time after the poor fellow paid us his last visit for myocardial liquidation, *without a murmur*, and without a trace of ascites.

In both cases it is remarkable that the peritoneal exudation ceased a few days after free drainage was established, and that this cessation was followed by a sudden marked increase in the excretion of urine, which suggests that drainage, by promoting re-establishment of circulation, admits of a temporary discharge of blocked organs from physiological bankruptcy, and that the relief of tension afforded by continued drainage facilitates the diuretic action of the medicines and diet employed.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TETANUS WITH GENERAL SPASM CURED WITH SERUM.

THIS case is reported because instances of general spasm due to tetanus are not very commonly cured by serum, and because the cure was probably made possible by the toxin being absorbed in a diluted form from the surface of an ulcer, so that at no time was the concentration of toxin within the nervous system great.

A woman aged 42, healthy, with one child, had been troubled with varicose veins in the left leg for a long period; some six months before coming under observation she knocked her leg and a varicose ulcer developed. This ulcer was treated by a friend supposed to possess "medical knowledge" by the daily application to the ulcerated surface of "fresh green leaves," of what plant I have been unable to ascertain; this treatment was continued until about three weeks before I first saw her, when she was put on some simple home-made ointment. Two days before seeking my advice she noticed some stiffness about the jaw, which gradually increased in severity and was accompanied by pain in the back of the neck.

I first saw her on June 17th, in the evening, when she had well-marked trismus, but no general spasms, and a temperature of only 99° F.; as the mouth contained many septic stumps I was in doubt as to the cause of the trismus. She had general muscular spasms during the night, and on June 18th had well-marked stiffness of the back of the neck, with a temperature of 101° F.

Dr. Bentlif saw her with me in consultation, and we agreed to the diagnosis of acute tetanus. She was immediately admitted to the Jersey General Dispensary; I excised the ulcer of the leg with a margin of healthy tissue, swabbing the raw surface with 1 in 20 carbolic acid, and at 10 p.m., whilst the patient was coming round from the anaesthetic, morphine gr. ½ was injected. Spasms were so frequent that it was necessary to give another ½ gr. of morphine at 1.30 a.m. No serum could be obtained on June 18th, but on June 19th, at 10 a.m., the spinal theca was tapped, and, after running off a corresponding quantity of cerebro-spinal fluid, 1,500 units of antitetanic serum were injected; the patient remained fairly quiet till 11 p.m., when morphine gr. ¼ was given.

Daily injections of 1,500 units antitetanic serum were given until June 25th, the first three being intrathecal and the rest intramuscular; the patient was meanwhile kept under the influence of morphine. The spasms gradually decreased in frequency and severity until, on June 24th, none occurred; the patient got her first sleep on June 20th, and her first good night on June 26th. On June 27th she was able to open her mouth sufficiently to admit the spout of a feeder, and for the first time to swallow with ease.

A marked serum rash appeared on June 27th, and continued till about June 30th.

On July 6th the wound caused by excision of the ulcer was skin-grafted, and the patient was discharged cured on July 19th.

In this case the neutralization of the toxin by the antitoxin was well shown by the marked mitigation of the spasms which followed the injection. The case illustrates also the danger which may attend the use of popular old-fashioned remedies.

Jersey. J. W. EVANS, F.R.C.S.

OBSTRUCTED MUCOUS SECRETION.

IN the course of tuberculosis dispensary work one sees a number of children illustrating the vicious effects of defective and disorderly mucous secretion. A typical case would be in the first ten years of life, more or less a mouth-breather, generally anaemic, somewhat underweight, with some cervical or submaxillary glandular enlargement, a varying amount of retraction of the chest, superficial thoracic veins overfull, and almost always a tumid or tympanitic abdomen. There is a history of restless nights, often with delirium, and of cough which is relieved by vomiting; appetite is fickle or absent at breakfast-time, and there is almost always mention of colicky pains in the epigastrium. The child's general condition improves as the day advances, and the appetite is frequently ravenous late in the day. School attendance aggravates the signs and symptoms, and exclusion is generally followed by speedy improvement. Deafness with

tinnitus and conjunctivitis are frequent accompaniments. The child often suffers from headache, which is a very real one when a child complains of it. In such a case with such a history one concludes that the signs and symptoms are those of toxaemia caused by a change in the physical and chemical conditions of the mucous secretions. All the conditions are suitable for multiple infections in great variety and producing various clinical manifestations. Many of the numerous cases sent to the dispensary labelled as tuberculous peritonitis (commonly called "consumptive bowels") are of this character and origin. Much worry is occasionally caused by premature labelling, but by seeing all such cases the tuberculous can be separated. The von Pirquet test and careful examination of the weight (marked loss is more common and less quickly made up in the tuberculous) can generally be depended upon to help in the exclusion of tuberculosis. The respiratory passages must suffer in course of time from the mixed infection however constituted; and the chronic catarrh will not refuse admission to the tubercle bacillus in favourable circumstances. The returns for 1920 may be expected to show a number of cases of "rapid consumption" in patients whose nasopharyngeal obstruction had given good opportunity to the influenza infection to settle down and diminish the patients' powers of resistance. Many of these children exhibit chronic eye infection, evidently of similar causation; and chronic because the initial trouble had not been recognized and treated. As to treatment, removal of the obstruction and prevention thereby of the retention and subsequent infection of the mucous secretions must be the counsel of perfection, and the earlier done the better. Open air schools will help much in the prophylaxis and should be universal.

Newport (Mon.). J. LEWIS THOMAS.

Reports of Societies.

ACUTE RHEUMATISM IN CHILDREN.

AT the meeting of the Medical Society of London on November 22nd a study of an outbreak of acute rheumatism in children under 12 years of age was brought forward by Dr. F. J. POYNTON jointly with Dr. D. H. PATERSON and Dr. J. C. SPENCE.

The object of the communication was to direct attention to the gravity of acute rheumatism in childhood by recording the results of a severe outbreak which occurred in the twelve months extending from July, 1919, to June, 1920, at the Hospital for Sick Children, Great Ormond Street. It was thought that such a record might be the forerunner of a much more extensive research on national lines in the future.

All the rheumatic cases admitted to the wards of the hospital during the twelve months were included in the series. They numbered 172—104 females and 68 males. The age incidence for the first attacks rose sharply from the second to the seventh year, and then fell to the twelfth. An hereditory factor was present in 40 per cent. The seasonal incidence, calculated from the earliest symptoms of illness, showed the maximum was reached in December, 1919, the minimum in March, 1920. November and December, 1919, and April, 1920, were bad months, and reference to the official meteorological reports showed that November was exceedingly cold with frequent snow and hail and all December was rainy, whereas March, 1920, was unusually mild. An exacerbation occurred in April, 1920, which was throughout wet and unsettled.

The serious results of the outbreak were put forward in two analyses—the first the results on leaving the hospital, the second the results when a revision of the cases had been made in September, 1920. The results on leaving hospital were as follows: 15 deaths, 17 complete invalids, 70 organic cardiac lesions, 70 recoveries. The second analysis showed that 7 more had died (raising the mortality to 22), the invalids had increased to 31, and compensation of the heart had been damaged by recurrent rheumatism in 12.

The economic aspect of this outbreak was interesting. In the hospital there were 100 medical beds, which were practically always filled, and the average stay of a medical case in hospital was twenty-eight days. The cost per bed per week was almost exactly £2 9s. If the 172 cases of rheumatism were looked upon as one case, that case would have monopolized a bed in hospital for 10,252 days—that is, between twenty-eight and twenty-nine years. All the hundred beds would have been occupied for fifteen weeks. The mere cost in money was £4,589. These cases occupied a bed on an average for sixty days. It was obvious how much the work of the institution as a hospital for acute cases was hampered, and the need for an auxiliary hospital in the country was urgent.

Out of the 172 cases 84 were first attacks, the rest recurrent. The chief manifestations in these first attacks were—in 33 chorea only, in 9 arthritis only, and in 5 heart disease only. The remaining 37 showed combinations of these manifestations. From this it was evident that chorea was the most frequent solitary lesion in rheumatism.

In an analysis of the entire series of 172 cases it was found that chorea occurred in 104 cases. The rheumatic origin of chorea was clearly shown from the following figures:

Sixty-seven had chorea and other rheumatic manifestations, 37 were examples of chorea only, but, of these, 6 had a family history of rheumatism and 11 suffered from tonsillitis so frequently that enucleation had to be done. On the other hand, 12 cases in the 172 had been admitted for active rheumatic heart disease and arthritis who in previous years had suffered from chorea only. How little association existed between chorea and fright was conclusively demonstrated by the air raids. From July, 1913, to June, 1914, there were 77 cases of chorea in 1,147 admissions (that is, about 6.5 per cent.); from January to December, 1917 (a year of severe air raids), 63 cases of chorea in 1,036 admissions (that is, under 6 per cent.); from July, 1919, to June, 1920, 104 cases of chorea in 1,292 admissions (that is, over 8 per cent.). The age incidence of chorea in this series coincided precisely with the curves for the whole series of rheumatic cases.

It was suggested by the authors that the relative frequency of rheumatism in the female was possibly exaggerated by the fact that in girls the most obvious manifestation (chorea) was three times as frequent as in boys. Possibly the less convincing manifestations in boys might be more often overlooked.

Complications.

Heart disease occurred in 114 cases, of whom 19 had general carditis, 63 mitral disease, 14 aortic and mitral disease, 15 transient dilatation, and 3 persistent rapid heart action. It was impossible to doubt that rheumatism was the actual cause of the heart disease. Arthritis and arthritic and muscular pains occurred in 111 cases. Acute tonsillitis immediately preceded an attack in 22 cases; 38 had enlarged and unhealthy tonsils; in 17 more the tonsils had been enucleated at varying periods before the attacks. It was clear that enucleation of the tonsils, valuable enough in suitable cases, was not a panacea for the disease, seeing that 17 children (one of whom had died) had acute rheumatism in spite of previous operation. There was no evidence of the intestinal origin of the disease. Nodules, as the older clinicians had insisted, were grave warnings. There were 33 cases: 12 died, 15 had become complete invalids, 4 had compensated heart lesions, and 2 were free from heart disease. There were 10 examples of erythema, 7 of purpura, and 6 of epistaxis. Rheumatism was more fatal in boys in the proportion of about nine boys to five girls. Of 12 cases fatal in the first attack 10 were boys. In this outbreak some of the most virulent cases showed no fever, in spite of general carditis.

The authors urged a more organized attempt to control rheumatic heart disease, for the most hopeful point connected with heart disease was its infective origin and the consequent belief that it ought to be—in part at least—preventable.

In the discussion which followed, the President, Sir W. HALE-WHITE, said that he had always reckoned that there was an average of eight cases of heart disease among forty-five adults occupying hospital beds, and that of the eight, six were rheumatic. Years ago there were fatal cases of pyrexia in fairly large numbers; he had not seen these lately, and they appeared to be growing less frequent. One possible reason why enucleation of the tonsil did not always do good was that the enucleation was only partial. The rarity of these cases of acute rheumatism in children in private as compared with hospital practice would form an interesting subject for inquiry.

Dr. A. F. VOELCKER thought that the experience of the authors in having in this small group two cases of nodules which were not accompanied either by endocarditis or pericarditis was a little unusual. In the whole of his

hospital experience he could only remember seeing two such cases. Before a condition could be said to be not rheumatic time for careful observation must be allowed, because the rheumatic picture often unfolded very slowly in the course of years; and that was one of the reasons why people had failed to recognize the supreme importance of rheumatism as a causal factor in chorea. He himself believed that all chorea in children was a rheumatic manifestation. He agreed that the authorities had been remiss in not recognizing the gravity of rheumatism. If appeals had been made to the public on the lines of appeals on the subject of venereal diseases and tuberculosis, something more practical might have been done to arrest the development of those cardiac troubles which played so large a part in maiming our young population.

Dr. FREDERICK LANGMEAD said that in mapping out the rheumatic incidence for the whole of London, cases had been found in greatest abundance along the courses of rivers, not only the Thames and the Wandle and the Lea, but even buried rivers like the Fleet and the Tyburn. That had been worked out in an interesting fashion by Dr. Shrubsall of the London County Council. The speaker asked whether, in the cases brought forward that evening, any had occurred one after the other in a particular house or family, as he had found in one or two instances. The speaker agreed that not enough stress was laid upon this question from the economic and sociological standpoint. In the London County Council schools for the physically defective one-third were cases of crippled heart; moreover, practically all the children who died within the first five years after leaving these cripple schools were heart cases. If rheumatism continued to be forgotten as it had been in the past, and tuberculosis loomed so large, there was some danger that open-air schools might result in more harm being done to the rheumatic children than good to the tuberculous children.

Surgeon Rear Admiral P. W. BASSETT-SMITH said that in the Royal Naval School at Greenwich there were a fair number of cases of throat affections, but the rheumatic cases were very few in number; this might be because the boys were so well fed and looked after. Dr. REGINALD JEWESBURY asked whether any steps had been taken to ascertain how far the housing conditions of these patients were responsible.

Dr. POYNTON, in reply, said that the question why so much less bad rheumatism was to be seen among the better classes still awaited an answer. The time must come when the country would have to face the problem; a great deal of heart disease ought to be prevented. The slowness of the unfolding of the rheumatic picture was a very important thing to be borne in mind. It took years before the whole development was before them. He was not quite certain that all chorea was a rheumatic manifestation. There was a certain amount of evidence to show that congenital syphilis might cause chorea. With regard to the question of occurrence in families, in this series, so far as he was aware, there were not more than four examples of brother and sister, or of two brothers, in a family being affected. Inquiry had been made of the parents in every case as to conditions in the house, but this was insufficient—there must be personal investigation.

Electrocardiography.

Dr. G. E. S. WARD read a communication in which he showed electrocardiographic tracings to illustrate some disorders of the myocardium. He explained the principle and construction of the electrocardiograph, which made it possible to obtain a photographic record of the oscillations of a quartz fibre which electrically corresponded to the pulsations of the heart. He said that the electrocardiograph must not supplant ordinary clinical methods of observation, but as a supplementary method it had its value. Dr. Ward showed tracings of the normal heart and of various disordered conditions, including paroxysmal tachycardia, auricular fibrillation and flutter, and heart-block in various degrees. Tracings were exhibited which showed a progressive lengthening of the auriculo-ventricular interval, the ventricle responding to alternate auricular impulses, then to every third, or fourth, or sixth auricular impulse, and finally, in the case of complete block, the ventricles setting up an independent rhythm.

PSYCHOLOGY OF ANAESTHESIA.

AT a meeting, on November 5th, of the Section of Anaesthetics of the Royal Society of Medicine, with Dr. SHIRLEY, President, in the chair, Dr. W. DUDLEY BUXTON read a paper on the psychology of anaesthesia. Psychology, said the author, included the investigation of phenomena which could not in any sense be regarded as confined to the activity of the conscious mind. He wished to draw attention to the quasi-mental phenomena which might be observed during narcosis; older views about the mentality during anaesthesia were inaccurate and needed modification. Abolition of consciousness did not necessarily predicate the smothering of all emanations from the higher brain centres, although such emanations differed in kind and in degree with different depths of narcosis. Some degree of subconsciousness was retained and under appropriate stimuli or auto-stimulation the patient might bring about effects which would influence his personal welfare.

The tests of consciousness commonly applied were inexact and only reliable so far as they evinced abrogation of certain reflexes. The "awareness" of lower centres persisted when that of the higher, which was consciousness, was abolished. Explanation was needed of the phenomena arising during narcosis of certain types of subject. Some soldiers, neurasthenics, alcoholics, and babies projected their conscious nerve dyscrasia into the period of anaesthesia. There appeared to be a freeing of the phylogenic instincts which lay in the subconscious mind, and were habitually repressed. The study of dreams which occurred in association with anaesthetics seemed to support the view that there was a liminal consciousness beyond that which passed away early in narcosis. These dreams might be deeply impressed and either remembered or recalled. A persistent impression was left on the unconscious mind, and was capable of being revived under similar conditions to those which had imposed it. Dreams repeated in identical details at wide intervals of time indicated that one was dealing with the subconscious mind, not merely with ordinary consciousness.

Dr. BUXTON said that the bearing on practice of these considerations was that complete abolition of consciousness must be secured before operation began, so as to produce as little effect as possible on the subconscious mind. Preliminary injections of morphine, scopolamine, and atropine were of great assistance.

Dr. M. CULPIN, Mr. W. A. L. FLEMMING, Mr. W. CECIL HUGHES, Mr. BELLAMY GARDNER, and the PRESIDENT having discussed the paper, Dr. BUXTON replied. He pointed out that ocular phenomena were not always reliable tests of depth of narcosis, and that ideas dominant at the moment of induction might persist in influencing the patient's mind; of this he cited instances.

THEORIES OF HEARING.

AT a meeting of the Sheffield Medico-Chirurgical Society, held on November 4th, Mr. G. WILKINSON read a paper entitled "Modern theories of hearing." After a brief review of the structure and mechanism of the middle and internal ear, he gave a demonstration (illustrated by experiments) of the principles of resonance, and showed how analysis of compound with simple tones was effected by a series of resonators. Helmholtz's application of resonance to explain the analysis of sound by the cochlea was described. In support of Helmholtz's view that of the transverse fibres of the basilar membrane each had its own proper period of vibration, progressively increasing from the base to the apex of the cochlea, were the facts:

(1) That these fibres increased progressively in length from base to apex. (2) That (as pointed out by Professor A. Gray) the external ligament probably regulated the tension of the transverse fibres, and that this ligament progressively decreased in bulk from base to apex. It was therefore probable that the tension of the transverse fibres progressively decreased. (3) The "load" on the transverse fibres, that is, the mass of the perilymph and endolymph intervening between each string and the oval and round windows, progressively increased.

It might be difficult to accept the view that these factors were sufficient to give the basilar membrane the amount of differentiation required for a series of resonators extending to 9 octaves, but at all events they would give sufficient differentiation to destroy entirely the value of the basilar membrane as a simple recorder of the movements of the stapes as postulated by the theories of

Wrightson and Rutherford, or as acting as a simple yielding membrane without resilience, as pictured by Ewald, Meyer, and ter Kuile. For such a purpose a simpler structure would answer better.

With regard to Wrightson's theory, why was a large and important nerve like the auditory, with its 4,000 or more branches in the cochlea, at all necessary for the performance of so simple a function? Was it to be believed that each of these 4,000 nerve twigs was carrying identically the same message to the brain at the same time? There seemed to the lecturer to be a fundamental misconception in all theories of analysis of sound by the brain (such as Wrightson's, Rutherford's, Meyer's, Lipps's). The essential act in sound analysis was not the resolution of pressure curves into their harmonic components, but the instantaneous measurement of small intervals of time. The disintegration of one of Wrightson's sound pictures necessitated the immediate recognition by the hearing centre of differences in the phase periods of his curves amounting to 100,000th part of a second. The measurement of time was essentially a mechanical operation. All our methods of measuring time depended on instruments giving harmonic vibrations.

The theories of Ewald and ter Kuile were referred to; they did not seem to offer a satisfactory explanation of the resolution of compound into simple tones. Up to the present no satisfactory working model of the cochlea had been made. Helmholtz's theory undoubtedly gave a fuller and more comprehensive explanation of the facts of hearing than any other; the difficulty in accepting it lay in certain anatomical details of the structure of the cochlea. Nevertheless, if Helmholtz's theory were rejected, it was the lecturer's opinion that up to the present no alternative explanation had been offered the inherent difficulties of which were not even greater. To speak of the central analysis of sound was only to push the explanation a step further back into the regions of the unknown.

SCOPOLAMINE-MORPHINE IN CHILDBIRTH.

AT a meeting of the Brighton and Sussex Medico-Chirurgical Society, held last month, Dr. ALEXANDER ORLEBAR read a paper on scopolamine-morphine narcosis in childbirth, based on an experience of eleven years and one hundred cases. He had obtained excellent results by following out strictly the details as originally laid down by Gauss. Upon the successful testing and estimation of the memory test hung the success of the method; for this the personality of the patient must be gauged. The results ought to be produced with the smallest possible quantity of scopolamine, no two women being quite alike in their response to the drug. With careful dosage the ideal state of amnesia could be obtained and the "memory islands" of Gauss avoided. The author had never given more than five $\frac{1}{200}$ grain injections of scopolamine, and had usually found three doses sufficient. Not more than one injection of morphine ought to be given. At the end of the second stage—the most painful part of labour—it was his custom to give a whiff of chloroform. He had also at that period found the pressure of a pledget of cotton-wool soaked in 2 per cent. novocain useful in preventing perineal tear. He had had but one stillbirth, and then the cord was tightly twisted round the neck. A certain number of the children were oligopnoeic, but all recovered when kept warm and otherwise left alone. He did not approve of cutting the umbilical cord early. The absence of *post-partum* shock he had found the most striking feature of the treatment. A general discussion followed, in which the President (Mr. HUGH STOTT) and eight members took part.

AT the meeting of the Cardiff Medical Society on November 9th, 1920, Mr. J. O. D. WADE showed a case of gangrene of the foot in a child aged 5 years, extending above the ankle, with a well-defined margin; duration five days, with no abnormal heart signs nor previous history. The diagnosis was discussed by Dr. ECCLES SMITH and Dr. PRICHARD. Embolism, scarlet fever, and Raynaud's disease were considered. Dr. OWEN RHYS showed skiagrams of a case of aneurysm with a history of syphilis, the only sign being a pulsating tumour, the size of a plum, coming through the manubrium sterni. The skiagrams were taken in the prone and dorsal positions. Mr. A. W. SHEEN read a paper on "The end results of colectomy."

Reviews.

TAYLOR'S "MEDICAL JURISPRUDENCE."

IT is generally acknowledged that the task of editing the successful work of another is peculiarly difficult, for although the structure is there the editor is faced with the imposed duty of maintaining the standard of excellence handed down to him. The seventh edition of *Taylor's Principles and Practice of Medical Jurisprudence*[1] affords ample proof that the late Dr. F. J. SMITH achieved nothing but success in his task. The two volumes are indeed not without flaw, but they are so complete, and contain so much that is useful and informing, that we doubt whether any similar production can successfully compete for the premier position they have so long held.

Medical jurisprudence is as much a special branch of medical science as, for instance, ophthalmology or obstetrics, and requires from its exponents as complete and rigid a training as these or other specialties. In medical schools the more elementary needs are met by the institution of special lectures, supplemented by the reading of textbooks. But we can hardly imagine that the volumes under review are likely to come into the hands of the medical student in general. They are designed for the expert, and in this term we include the lawyer, for whose use, as the preface to the fifth edition expressly states, they were also intended. That the student would benefit by reading them goes without saying; but the crowded state of his curriculum scarcely allows of time for the study of a book so full. This aim and purpose of the author is made apparent by the phraseology employed; in some places, indeed, this is so technical that those uninstructed in law might well find difficulty in understanding exactly what is meant. What may be regarded as an extreme example is found on page 89, vol. i, where the following sentence occurs: "Negligence has no Act of Parliament constituting it a statutory offence; there is no parliamentary definition of the tort, for it is part of the common law of the land."

But it is precisely this peculiar method of treatment that gives the book its special value: it is a work for experts, legal or medical, and, while of value to both, loses nothing by attempting to balance the opinion of each. Medical practitioners are at times prone to attribute crime to some mental defect. The lawyer may mistake a lunatic for a rogue. In the conflict of opinion that arises out of the divergent views of the two professions it is probable that both parties have some degree of reason on their side, although in any individual case one side must be right and the other wrong. It must, therefore, be of mutual advantage to have a neutral exposition of the contentious matter where each party can hear the reasons that determine any particular belief. Whether the term "neutral" can with propriety be applied to the writings of medical men in such a connexion may be open to argument, but we believe this textbook comes very near to conforming with that description.

No attempt will be made here to discuss in detail the form or method adopted in the two volumes, because this book is so well known, and has so long enjoyed an extensive popularity, that it would be superfluous to do so. Such changes as have been made are in the direction of bringing the subject matter up to date by the addition of recent cases. Naturally, the late Dr. F. J. Smith has woven much of his individuality into the text. He has left us this heritage of much wisdom and sound sense.

PELLAGRA.

THE book on *Pellagra*,[2] by Dr. H. F. HARRIS of Atlanta, is the latest on this important subject, and ought to be read and studied carefully by all interested; it contains an enormous mass of detail, and has a bibliography covering 30 pages. The first chapter is devoted to historical details; to the second, on causation, 127 pages are allotted; the third chapter deals with pathological anatomy; the fourth with symptomatology; the fifth with diagnosis; the sixth

[1] *Taylor's Principles and Practice of Medical Jurisprudence.* Edited, revised, and brought up to date by F. J. Smith, M.A., M.D. Oxon. Seventh edition. London: J. and A. Churchill. 1920. (Roy. 8vo, pp. 1912; 14 figures. Two volumes, £3 3s. net.)

[2] *Pellagra.* By H. F. Harris, M.D. Atlanta. New York: The Macmillan Company. 1919. (Med. 8vo, pp. 421; 7 plates. 26s. net.)

with prognosis; the seventh with prophylaxis; the eighth with treatment; and the ninth with pellagra in relation to life insurance.

In an appendix particulars are given of Austrian and Italian laws on bad maize. The pendulum has swung so far that at present the popular view is that pellagra is a deficiency disease, due to the absence of something in the food; this harmonizes quite well with the theory that the disease may be due to an exclusive diet of maize. Dr. Harris is very severe on Sambon's simulium theory; though the reviewer agrees that there is no evidence to support Sambon's views, yet it is not correct to say that that observer had never seen pellagra before, or had no practical acquaintance with it. He had seen it and studied it years before in Italy.

The chapter on causation brings out very clearly the amount of work that has been done on this disease, and the diverse theories that from time to time have been propounded to explain it. The book is an excellent compilation, and brings into quite a reasonable compass all previous work on the subject which is worthy of preservation. Dr. Harris's own views, also, are very valuable, and everyone who studies pellagra must thank him for providing them with enough pabulum to keep them occupied for the next six months or more. The study of the immense mass of material in the book cannot fail to help towards the final elucidation of this puzzling problem.

FEEBLE-MINDEDNESS IN CHILDREN OF SCHOOL AGE.

UNDER this title Dr. C. PAGET LAPAGE has republished in second edition his useful and compact treatise which originally appeared in 1910.[3] Owing to the passing of the Mental Deficiency Act in 1913, and consequent extension of the field of work amongst mental defectives, much new material awaited introduction, but war exigencies unavoidably retarded the author's revision of the book. The present issue embodies much valuable information as to the administrative changes resulting from the Act, and in a new chapter a comprehensive summary of its principal provisions is given, with a list of the agencies, official and voluntary, concerned in carrying these provisions into effect. While considerable progress has been made, it is noted that war conditions have of necessity adversely influenced the establishment by public authorities of adequate accommodation in the way of institutions and colonies for the large number of defectives found to require permanent care, and this need will become even more accentuated when the statutory duties of "ascertainment" come to be more efficiently performed. Dr. Lapage also gives instances of difficulties which have arisen in the interpretation of the Act—for example, as to what constitutes *neglect* so as to bring a defective within its purview. With these exceptions, the general arrangement of the work remains much as in the original issue, but in the chapter on diagnosis we note some interesting additional paragraphs on deafness in relation to feeble-mindedness, as to which Dr. Lapage's experience as physician to the Royal Schools for the Deaf at Old Trafford renders him an exceptional authority. The value of the book is again enhanced by the contribution by Miss Dendy, M.A.—now a Commissioner of the Board of Control—of a chapter on the training and management of feeble-minded children, based on her former practical experience as honorary secretary at the Sandlebridge Colony.

SURGICAL WORKS.

Fractures, Compound Fractures, Dislocations, and Their Treatment, by JOHN A. C. MACEWEN,[4] is a book of moderate size, well illustrated by many excellent plates from photographs. There are numerous figures of splints, showing their application to various fractures, and a section on amputations and artificial limbs. In describing the individual fractures, the author endeavours to guide the reader in the selection of methods of treatment when there is a diversity of opinion. Under the heading of compound fractures no mention is made of the Carrel-Dakin method of treatment, or the method of delayed primary suture, both used so successfully during the recent war. Suspension of the limb from a pole above the bed is mentioned under the treatment of fractured femur, but the Balkan frame is not illustrated by a diagram, although an illustration is devoted to Liston's long straight splint applied with extension. It is rather surprising to read that the latter method is often employed for extracapsular fracture of the neck of the femur. Again, the statement that successful reduction of congenital dislocation of the hip is frequently obtained by extension and abduction, with massage or, occasionally, tenotomy of the adductors, does not coincide with the experience of every surgeon in the treatment of these cases, and many will not agree with the author that open operation with excision of the hip should be performed when the above mentioned treatment has failed.

In *Plastic Surgery*[5] Dr. J. S. DAVIS has produced an excellent description of the principles and methods of operating in this branch of surgery; the author states which methods in individual instances have given the best results in his hands, and at the end of each chapter is a full bibliographical index on that particular subject. The book is profusely illustrated and the various operations are explained with the aid of numerous diagrams. Every branch of plastic and reconstructive surgery is fully dealt with, and due credit is given to the work of English and French surgeons. Transplantation of skin, fat, bone, cartilage, etc., is described at length, as also the use of pedunculated flaps. In the reconstructive surgery of the jaws and palate the author rightly insists on the necessity of the co-operation of a skilled dental surgeon. He also lays stress on the value of keeping graphic records, by photographs or plaster casts, of the various steps in cases requiring a long series of plastic operations.

VISCERAL NEUROLOGY.

IN his book, entitled *Symptoms of Visceral Disease*[6] Professor POTTENGER has drawn for the general medical reader a chart to the main streams and the backwaters of visceral neurology. The profession in this country has had the privilege of education on this subject for many years at the hands particularly of Mackenzie and of Head. Both these authors will be found freely quoted by Pottenger, as was, indeed, inevitable. Gaskell is another British author to whose work it is a pleasure to see homage paid in this book. Gaskell's *Involuntary Nervous System* is, one suspects, known only by its title to the majority of clinicians. The book under review is divided into three sections. The first deals with the relation between the vegetative nervous system and the symptoms of visceral disease, and in it the segmentation of the body, the viscerogenic reflexes, and various sympathetic syndromes are discussed. The second part consists of an account of the various viscera, and the situations of the pains referred from them when diseased. In the third part the more academic side of the sympathetic system is reviewed.

It will be recognized that no corner of the field is left unobserved, and a glance at the handsome illustrations and clear diagrams in colour create a favourable impression. And yet this is hardly a good book and is certainly not a readable book. One cannot help all the time comparing it with certain others, older, more incomplete it is true, yet possessing a certain imaginative fire which this totally misses. Professor Pottenger must be an enthusiast, and yet he has quite failed to transfer any of this enthusiasm to the written page. The absence of case records and of interesting illustrative examples contribute to the general dullness. An exception may be made for the section on diseases of the chest, where the author calls attention to various trophic changes in the thoracic walls connected with diseases of the lungs and pleura. Here

[3] *Feeble-mindedness in Children of School Age.* By C. Paget Lapage, M.D., M.R.C.P. Second edition. Manchester: University Press; London: Longmans, Green and Co. 1920. (Cr. 8vo, pp. xv+309; 14 plates. 10s. 6d. net.)

[4] *Fractures, Compound Fractures, Dislocations, and Their Treatment.* With a Section on Amputations and Artificial Limbs. By John A. C. Macewen, M.B., C.M., B.Sc. Glasgow: Maclehose, Jackson and Co. 1919. (Cr. 8vo, pp. xii + 285; 43 full page plates, 61 figures. 12s. 6d. net.)

[5] *Plastic Surgery: Its Principles and Practice.* By John Staige Davis, Ph.B., M.D., F.A.C.S., Instructor in Clinical Surgery, Johns Hopkins University. London: Henry Kimpton. 1919. (Med. 8vo, pp. xv + 770; 1637 figures. 42s. net.)

[6] *Symptoms of Visceral Disease.* By F. M. Pottenger, A.M., M.D., LL.D., F.A.C.P., Professor of Diseases of the Chest, University of Southern California, U.S.A. London: Henry Kimpton. 1919. (Med. 8vo, pp. 328; 86 figures, 9 coloured plates. 21s. net.)

again a few well selected clinical records would have driven the lesson home more certainly and perhaps have helped to convince the sceptical.

One closes the book finally with regret that its writer has just failed to kindle that divine spark without which the most learned work remains uninspiring.

NOTES ON BOOKS.

WE have received a *Synoptic Chart of Cardiac Examination*,[7] by Dr. JOHN D. COMRIE, which consists of a diagrammatic representation of the human chest on a large card, and by an ingenious arrangement on pulling certain tapes the names of various diseases appear at an opening, with at the same time their physical signs at the appropriate positions on the diagram. The idea is very completely worked out and a full range of chest conditions is given. Accompanying the chart is a pamphlet on the physical examination of the heart, with a brief description of the more recently introduced methods of examination. In conjunction with and not as a substitute for his clinical work in hospital this chart should be valuable to the student working for his final examinations.

In the early years of this century, even before the war, there was a remarkable poetic efflorescence. The emotions stirred by the war, the sacrifices it demanded, and the hope it inspired of a better future, moved new writers to find expression in verse, and gave a fresh direction and earnestness to the thoughts of others who had already felt the impulse. Mr. KEITH MONSARRAT, we judge, belongs to the latter category. The poem which gives its name to his volume, *The Red Halls and Other Verses*,[8] is a finely imaginative expression of the dream of a better world after the war, but the author's inspiration is in his reverence for Nature, his love for her in her varied moods, from the uplift of the hills to the happy security of the orchard. In a piece entitled "The Children" the author gives in melodious verse his philosophy of life from its beginnings, through the placid certainty of the simpler creatures, to man's aspirations, and his alternate doubts and certainties.

[7] *Synoptic Chart of Cardiac Examination.* By John D. Comrie, M.A., B.Sc., M.D., F.R.C.P.E., Assistant Physician, Edinburgh Royal Infirmary. London: John Bale, Sons, and Danielsson, Ltd. 1920. (4s. 6d. net.)

[8] *The Red Halls and Other Verses.* By K. W. Monsarrat. London: Erskine Macdonald, Limited. 1920. Pp. 48.

BALANCE IN NUTRITION.

THE HUXLEY LECTURE BY PROFESSOR F. G. HOPKINS.

THE Huxley lecture on recent advances in science in their relation to practical medicine was delivered by Professor F. GOWLAND HOPKINS, F.R.S., of Cambridge, at Charing Cross Hospital, on November 24th. Sir FREDERICK MOTT presided, and, before introducing the lecturer, said that he wished Huxley were alive to-day to controvert in the way that he alone could do some of the things which were now being said in belittlement of the evolution theory.

Professor HOPKINS said that the tragic years of war had made the life and times of Huxley seem disproportionately remote, but in the natural course of events the Huxley lecturers of the future, unlike those of the past, must be men who had not enjoyed—as he himself had not—the advantage of personal association with the man in whose honour the lecture was founded. For mid-Victorian science Huxley's gifts provided both shield and buckler, and it was unfortunate that in Huxley's particular position as the champion of scientific aims he had had no quite adequate successor. All that was now needed to put our race in the van of scientific progress was some national awakening to the fact that the investigator no less than the administrator was necessary to the public weal.

Professor Hopkins went on to say that he intended in the lecture to present the subject of nutrition from a somewhat special standpoint. Recent acquirements of knowledge were changing the angle from which the needs of the body must be viewed. While he did not undervalue the results of accurate calorimetry as applied to man, he considered that the data were insufficient. The war, which made the study of alimentation urgent, proved that we possessed still far too little knowledge of the energy requirements of troops in the field. Such advice as could be given was also lacking in precision for another reason—namely, that either we had too little knowledge of or too little faith in chemical considerations as applied to the science of nutrition. Only by the full consideration of chemical details were adequate criteria made available for dietetics. Energy contents could not be the sole criterion in the case of any diet. An animal might receive, digest, absorb, and in a sense fully metabolize a diet consisting of all the recognized basal foodstuffs, in sufficient or more than sufficient quantity to provide energy, and yet its nutrition might be so abnormal that neither growth nor health could be maintained.

He then entered upon a discussion of isodynamic equivalence: it was Ruebner who developed the doctrine that the energy exchanges of living matter gave a higher and more significant criterion of human life than could be provided by any mere estimation of material changes. In his endeavour to arrive at some criterion of life other than the material, Ruebner sublimated the conception of energy, and the lecturer noted that from the more philosophical point of view this was supported by Bergson. The standpoint of energetics, wherefrom the chemical materials on which life was based appeared to be relatively of small importance, was still dominant in some of the highest quarters. The basis of the doctrine was that one foodstuff could replace another without disturbance to the nutrition so long as the energy supply was maintained. This involved a *suggestio falsi*. No one of the fundamental foodstuffs could replace another. A minimum of each basal foodstuff was essential to the body. If the term "law" could be used in biological science at all, it might be said that in the dynamics of nutrition the law of the minimum overrode the law of isodynamic equivalence. It was even true that a certain minimum of carbohydrates was required to secure full utilization of fat, and the converse also seemed to hold good—that a certain minimum of fat was necessary for the proper utilization of carbohydrates. The law of isodynamic equivalence, so far from having that absolute character which would give it a theoretical importance, might very well also fail as a guide in practice.

The complex molecule of protein consisted of some twenty structural units assembled in what might be called the molecular pattern of the protein. They all belonged to one chemical genus, since all were residues of amino-acids, but each represented a separate species, since each had elements of molecular structure which differentiated it from all the rest. In the molecular patterns of diverse proteins any individual unit might recur, in one case seldom, and in another many times. In digestion the pattern of the protein consumed was destroyed; the processes in the alimentary tract liberated the constituent units, and these for the most part, if not entirely, were free and individual when by way of the blood they reached the tissues. The body could dispense with certain parts of its food protein, usually with the amino-acids of simple structure; some it dispensed with less easily, and others, usually the more complex in structure, it found wholly indispensable.

Nutrition might wholly fail even when the supply of protein, no less than that of fats, carbohydrates, and minerals, was perfect. In that case a vitamine deficiency would be looked for. The subject of vitamines was no longer in any strict sense new, but its practical importance still needed appraisement. There was as yet no other definition of the vitamine as a nutrient than that which was based on its indispensability, its very low effective concentration, and ignorance of its nature. This was not a case of the known masquerading as the unknown, for the technique employed in exploring vitamines had by now attained considerable accuracy. At least three vitamines were known, and it was quite possible that others existed, and that other deficiency diseases might be traced to their absence. In view of the evidence, the endeavours which were being made to bring scurvy into the category of intoxications could only be due to an obsession that some positive element—some intruder, so to speak—must always dominate etiology. No doubt the term "negative cause" was abhorrent in formal logic, but the objection to a term was a small matter. There were some, however, whose objection went beyond the term, and who thought that the production of phenomena like the symptoms of a disease could only be due to some positive factor. There were those who appeared to think it logical to attribute a condition to some cause of excess, but illogical to attribute

it to some cause of deficiency. He maintained that the reason for scurvy was the absence of the unstable anti-scorbutic vitamine, and that it was a sufficient reason. Deficiency might be a real element in etiology.

Before closing, Professor Hopkins referred again to the possibility that an ill-balanced supply might be the reason for failure in health even when the actual supply was sufficient, and he dealt with the evidence forthcoming in cases of pellagra in support of this view. The recognition of specificity in proteins was of more than academic importance. If the application of all these considerations to practical medicine bore only upon the production of actual disease they would be important enough, but not so important as he believed they really were. A deficiency which in its extreme form produced a disease that could be labelled would almost certainly, when less extreme, produce some failure in health or development. From a better grasp of these principles we might be led to make the failure of health and development in children a little more referable to nurture instead of to Nature, to environment instead of to heredity, and therefore more capable of direct remedy.

On the proposition of Sir JAMES GALLOWAY, seconded by Sir HERBERT WATERHOUSE, a cordial vote of thanks was passed to Professor Hopkins.

POST-GRADUATE TEACHING IN LONDON.

THE annual meeting of the amalgamated Fellowship of Medicine and Post-Graduate Medical Association was held at the house of the Royal Society of Medicine on November 25th. The President, Sir GEORGE MAKINS, was in the chair.

The annual report, read by Mr. HERBERT PATERSON, one of the honorary secretaries, stated that since the beginning of the year 365 persons had availed themselves of the various courses, and that the majority took tickets for two or three months—some for five or six. Of the total, 153 came from the British Isles, 77 from the Dominions, and 29 from India; 12 officers of the Medical Service R.N., 10 of the Indian Medical Service, and 11 of the Colonial Services had attended. Of the foreign members 38 came from the United States of America, 5 from Switzerland, and 4 each from Norway and Holland; various other countries, including Spain, Serbia, and Japan, were represented. The number in 1919, owing to the exceptional conditions of that year, was very much larger, but the total for this year was, in the circumstances, considered to be encouraging, indicating very clearly that there was a demand. During the year five additional hospitals had offered facilities for post-graduate study. Dr. Eric Pritchard had given three courses on infant welfare at the St. Marylebone General Dispensary, and Mr. J. M. Hepburn a course of demonstrations in ophthalmology at Moorfields; a series of special "gynaecological talks" had been given by Mr. Victor Bonney at the Middlesex Hospital on Saturday mornings, and special lectures had been given at the Cancer Hospital. It was proposed to arrange at these and other hospitals similar short courses, lasting two or three weeks, in various branches of medicine and surgery, and it was hoped to have at least one such course in progress at any given time. Two special courses at the National Hospital for the Paralysed and Epileptic had been thrown open to members of the Fellowship; courses were given also at the National Hospital for Diseases of the Heart, St. Mark's Hospital, and the North-East London Post-Graduate College. The report was adopted, together with a cordial vote of thanks to the Royal Society of Medicine for its generosity in placing an office at disposal.

A discussion ensued, during the course of which suggestions were made for the organization of teaching in special hospitals. Dr. BLACKER, Dean of University College Hospital Medical School, said that in place of looking to the teaching hospitals, steps should be taken to organize teaching in special hospitals. There was a movement on foot, shortly to be considered by the staffs of the special hospitals, for post-graduate courses in obstetrics and gynaecology; it would be possible for these hospitals and for other special hospitals to reserve appointments as residents and clinical assistants for post-graduates. Dr. EISENDRATH, Secretary of the Chicago University Medical School, gave an account of the arrangements which are being made there. The university had received large capital gifts from the Carnegie and Rockefeller trustees, and part of the money would be devoted to establishing a first-rate post-graduate school. It was proposed to reserve two hospitals for this purpose, and to have three kinds of courses: (1) A course lasting three years in some speciality, a successful candidate receiving a degree; (2) a shorter course of instruction in a speciality, the candidate receiving a certificate; and (3) so-called "brush-up" or revision courses lasting short periods—from a few days to a few months. Probably 75 per cent. of those who joined the school would take these short courses. It was proposed that the school should have a central meeting place, where there would be an office for supplying information. Sir STCLAIR THOMSON insisted upon the need for organizing courses at special hospitals; taking otology as an example, he said that the course should begin with instruction in the anatomy of the part, it should pass on to the pathology and diagnosis of the diseases by which it was affected; and would conclude with practical instruction in manipulations. Dr. HURST suggested that such courses in certain subjects might be arranged at teaching hospitals. The CHAIRMAN observed that it was necessary to have a post-graduate centre in London; it should be obtained as soon as possible. Negotiations to acquire a hospital to serve as such a centre had so far not come to anything.

Sir ARBUTHNOT LANE, treasurer, presented the annual financial statement, which showed that after meeting the cost of administration and of the publication of the weekly *Bulletin* there remained a sum of £600 out of which to make provision for the remuneration of teachers; it was resolved to leave to the Council the allocation of this money among the various hospitals. During a brief discussion the inadequacy of the sum was recognized, and it was pointed out that the Chicago school had found it necessary to obtain an endowment. Assuming that there was no prospect of raising an endowment fund here it was asked whether it might not be feasible to obtain an annual subsidy from the Treasury, such as is, under certain conditions, paid to undergraduate schools.

PRESENTATION TO DR. J. A. MACDONALD.

THE following further subscriptions have been received from October 19th to November 27th, in response to the appeal published in the JOURNAL of July 24th (p. 129), towards a presentation to Dr. J. A. Macdonald on the occasion of his retirement from the office of Chairman of Council of the British Medical Association which he had held for ten years. Subscriptions of any amount not exceeding five guineas should be made payable to "The Macdonald Presentation," and sent to the Medical Secretary, British Medical Association, 429, Strand, London, W.C.2.

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THE late Sir Frank Mappin has by his will bequeathed £5,000 each to the Royal Infirmary and the Royal Hospital, Sheffield, and £2,000 each to the Jessop Hospital for Women and the Sheffield Children's Hospital.

British Medical Journal.

SATURDAY, DECEMBER 4TH, 1920.

THE PUBLIC PRESS AND THE PUBLIC HEALTH.

DURING the last few years the lay press has shown a remarkable and very welcome interest in matters concerning the public health; the expression of this interest has been of much educative value, and has been all to the good. The history of medicine in England during the last sixty years or more tends to prove that it has advanced in large measure at the pace that public opinion has sanctioned; through no channel is it so possible to create and encourage a right opinion on the various advances in medicine and the direction which such advances should take as through the lay press. Recently, however, the columns of some of our leading lay contemporaries have been opened to the expression of opinions and the enunciation of criticisms which we are compelled to conclude have been biassed by considerations having as their basis political predilections rather than a sincere desire for the advancement of public health and social welfare.

The position that has thus arisen would not directly concern the medical profession as a whole were it not for the fact that an important principle is at stake, a principle that may reasonably be said to be one of the fundamental axioms of citizenship. It is in accordance with the tradition of politics that politicians should be criticized in the public press. They take sides and are open to attack; but when permanent members of the Civil Service are thus criticized the case is different, and the matter is made worse when the accusations are founded not on fact but on error, arguments so based being used with, it would appear, a political intent.

The assertions that have recently appeared with regard to, for instance, sanatorium treatment, the appointment by the Ministry of Health of referees, the size of insurance practices, and hospitals, are misleading, and in some cases are so wide of the truth that they can only be termed ill-informed and irresponsible. It has been stated, for example, that by March 31st, 1920, the Ministry had approved 9,624 beds in sanatoriums, etc., whereas we are informed that the number of beds in approved sanatoriums, etc., on that date was 15,781. The results of open-air or sanatorium treatment of phthisis have admittedly been disappointing. That experience, however, has not been peculiar to this country; nowhere have the first hopes been realized. The optimist will say that the treatment has seldom had a fair trial, that it has been used for advanced cases to which it is not applicable, that in early cases a few months' open-air treatment is insufficient, and that a much more elaborate organization, including sanatoriums at the one end and industrial homes at the other, is needed. It is, however, only fair to remember that the tuberculosis schemes of many local authorities were only in the initial stage when the war broke out and stopped all substantial progress. The exact value of sanatorium treatment and the conditions under which it will yield the best results can only be determined by experiment on a large scale.

Again, the attention of the public has been arrested by a statement which conveyed the impression that as a general rule an insurance doctor was expected to treat 3,000 insurance patients in a year. But what are the facts? Of the 12,000 insurance practitioners, only 254 have 3,000 or more persons on their insurance list, and 7,204 have less than 900. After the end of this year no one practitioner will be allowed to have more than 3,000 on his list. There seems to have been a desire to induce the public to think that if a doctor had 3,000 insured persons on his list, he had to treat each of those 3,000 persons as patients during the year; this, of course, is not the case; the records indicate that about 60 per cent. of persons entitled to treatment apply for it in any year. A great deal is made of the introduction of so-called army methods through the appointment of referees, who, it is assumed, will interfere with the work of insurance doctors. It is, however, to be noted that the appointment of independent whole-time medical referees was demanded by the doctors engaged in this work, and was adopted as the policy of the British Medical Association in 1913. They are appointed to assist practitioners in the organization of their work so as to secure to the insured persons adequate treatment. The proposal was approved by Parliament in 1914, but owing to the war the appointments were not made at that time. We must protest also against recent statements made in some of our contemporaries, tending to suggest that the public cannot feel confident that the secrets they entrust to Government departments are safe. It is implied that the integrity of the medical officers of such departments is not above suspicion. Any such suggestion can be made only by those who do not know the facts or by those who wish deliberately to secure their ends by unfair means. One assertion by the medical correspondent of the *Times* seems particularly uncalled for. He says that there is nothing to prevent one of the medical referees turning over official records of a private and confidential nature to his wife to be scrutinized. The implied insinuation is entirely unwarranted.

We may leave Dr. Addison to dispose of the charge made specifically against him of being anxious to put the voluntary hospitals on the rates. It seems a little improbable, even though his Ministry is accused of being one of the worst of Government spendthrifts. The position is difficult, for the hospitals must be continued, and Dr. Addison will have the goodwill of the profession and the public in taking steps to prevent so serious a blow to the interests of the community as would be inflicted by the closing of the large general hospitals. As we have said before, it is, we think, to be regretted that the hospital legislation was introduced in a single clause of an omnibus bill. No doubt the matter became urgent during the summer, but there is a good deal in the contention of a considerable body of members of Parliament that the position ought to be fully examined by a strong committee, which could investigate it from the point of view of the individual patient, the community, and medical education. Such a committee would have the advantage of the considered views of the Medical Consultative Council of the Ministry. Dr. Addison has not accepted the suggestion to its full extent, but on Tuesday promised to appoint a small independent committee to inquire into the financial position of the voluntary hospitals throughout the country and to make recommendations to him. Pending the report of the committee he withdrew that part of Clause 11 which authorized counties and county boroughs to contribute to voluntary hospitals. The provisions with regard to Poor Law infirmaries he maintained.

It may be remarked that the relations of the medical profession and the Government have been

steadily improving during the past few years, owing to the frank acceptance by Government departments of the necessity of consulting the medical profession on matters in which medicine is deeply concerned. Among the principles and methods of the Ministry of Health which have recently been the subject of attack are some which were in fact adopted by the Ministry at the special desire of the medical profession and in consultation with its representatives.

THE TREATMENT OF ANTHRAX WITH NORMAL OX SERUM.

IN an interesting monograph,[1] recently issued from the National Institute of Hygiene of the Argentine Republic, J. Penna, J. Bonorino Cuenca, and R. Kraus describe the steps that led to the employment of normal ox serum in the treatment of anthrax in the human subject and the remarkable results obtained. The large quantity of serum from an immunized animal that is needed in the treatment of anthrax served to draw attention to the need of a better method, and the absence of demonstrable antibodies in this therapeutic serum led to an investigation of the value of serum from normal animals for protecting against anthrax.

In the first part of the monograph is described in detail the experimental evidence which led to the conclusion that serum of a normal ox compares favourably with that of the immunized animal for protecting a rabbit of 600 to 800 grams against a lethal dose of living anthrax bacilli. This protective property also obtains in the case of serum of the normal horse, mule, and sheep. The protective power of normal ox serum varies in different animals; but as the authors could always find some specimens of normal ox serum as strong in protective power as the serum of the immunized animal they proceeded to apply carefully tested normal ox serum for the treatment of anthrax in the human subject. Before use the normal ox serum was heated twice for half an hour to 56° C. for the purpose of eliminating any toxicity it might possess. Ox serum so heated did not produce in man any bad reaction, even when injected intravenously. The usual dose given was 30 to 50 c.cm., which in bad cases is injected intravenously, but in milder cases may be given subcutaneously or intramuscularly. In some mild cases it may not be necessary to give as much. The dose is repeated in from twenty-four to forty-eight hours if necessary. In applying this new treatment to human cases of anthrax they began with great caution, and first of all treated moderately severe cases with the serum of an immunized ox. This proving successful, they next tried serum of the normal ox, and found it to succeed equally well. Having thus obtained confirmation of the protective value of normal ox serum for treating the disease in the human subject, they proceeded to apply the method on a wide scale.

After injection of the normal ox serum, whatever the route employed, the reaction of Sclavo is observed. This consists of a rise of temperature which returns to normal in twenty-four to forty-eight hours and at the same time the inflammation and oedema at the site of the malignant pustule diminishes. In some cases the local oedema persists or the temperature remains up until another injection of the normal ox serum is given.

Full particulars are stated of the clinical features of 200 cases of anthrax treated at the Muniz Hospital with normal ox serum. In all of the cases the anthrax bacillus was demonstrated in the local lesion by film preparations and in the majority it was obtained by culture as well. In sixteen of these cases a positive blood culture was obtained. The situation of the malignant pustule in these 200 cases was as follows: Face and head 73, neck 56, thorax 11, arms 29, hand 25, leg 4, abdomen 2. In addition to these 200, 180 further cases of anthrax have been treated with normal ox serum, making in all 380. The mortality was 6.2 per cent. Sixteen of the cases treated were instances of intestinal anthrax which are always fatal, and these the serum failed to cure. It is noteworthy that six of the cases of anthrax septicaemia recovered on treatment with the normal ox serum. The authors are puzzled to account for the fact that all the intestinal anthrax cases died as usual, while some of the septicaemic cases recovered with the serum treatment; they incline to the view that the intestinal cases are metastatic in origin and only occur in the worst form of infection. In addition to the cases referred to, 418 cases of anthrax were treated in five other hospitals with normal ox serum, with a mortality of 4.3 per cent.

The exact appraisement of these results is difficult, owing to the extent to which anthrax mortality fluctuates. Thus between 1905 and 1914 the mortality in the Muniz Hospital varied between a minimum of 2.7 and a maximum of 25.0 per cent. Sclavo treated 164 cases with his well known immune serum, with a mortality of 6.09 per cent. That the normal ox serum has remarkable protective properties against anthrax, both experimentally and therapeutically, seems evident, and the treatment is being tried in the Argentine on a wide scale with encouraging results. The extraordinary thing is that the protective power of serum from normal animals, such as the ox, against anthrax should not have been discovered before. The mode of action of the serum is at present obscure, but light on this matter will doubtless be forthcoming before long with the problem in the hands of such a distinguished pioneer in serology as R. Kraus.

[1] *El Tratamiento del Carbunclo Humano Con el Suero Normal de Bovino.* J. Penna, J. Bonorino Cuenca, R. Kraus. Buenos Aires. 1920.

NOMENCLATURE OF DISEASES.

IN a letter printed in our issue of November 27th (p. 843) Dr. Guillermo Arbulú made some suggestions with regard to the nomenclature of diseases, and he forwarded a memorandum presented by himself and Dr. H. Jaworski, as delegates from Peru, to the Commission Internationale chargée de la Revision des Nomenclatures Nosologiques, which met in Paris last October. This paper contains further illustrations of the suggested changes for unifying the nomenclature of diseases, and it may be well to refer briefly to this subject. As pointed out in Dr. Arbulú's letter, the termination "itis" should be retained for inflammatory affections, but in addition diseases due to bacterial infection (the word "bacillary" was used in the letter, but the memorandum, and of course the context, shows that bacterial was meant) should have the affix "osis"—for example, cholerosis, tetanosis, epidemic cerebro-spinal meningosis; while other parasitic (protozoan and metazoan) infections should take the termination "iasis," familiar in trypanosomiasis and trichiniasis. In this way an attempt is made to secure uniformity on an etiological basis, and instead of names capriciously dictated by chance or custom for infective diseases, such as syphilis, erysipelas, and gonorrhoea, there would be substituted titles on a consistent basis, such as syphilosis, erysipelosis, and gonococcosis. It is further hoped that such an arrangement would stimulate medical men to accuracy in diagnosis, and that statistical results would benefit from the greater prominence given to the factor of infection. As thus stated, the suggested modifications

certainly seem attractive, but very little reflection shows that their adoption—and it appears that the international commission accepted the proposed terminology as alternative to that at present in use—will not be unattended by difficulties. The termination "osis" is in common use without any such etiological significance—for example, in necrosis, neurosis, gliosis, dermatosis, chlorosis, and scoliosis; and restriction of the termination to bacterial diseases would be so troublesome as to outweigh the advantages. The affix "iasis," which it is proposed should indicate parasitic diseases, is well established in psoriasis, leontiasis, and some other diseases of a different nature. In some instances a title inappropriate under this scheme might be changed without much difficulty; thus, pediculosis might give way to phthiriasis, and hydatidosis, a term seldom used, might be transformed into hydatidiasis; but some protozoan infections, such as spirillosis and spirochaetosis, have taken root, and would be less easily converted into spirilliasis and spirochaetiasis. Drs. Arbulú and Jaworski, indeed, proposed the termination "osis" for the following protozoan infections: Syphilosis, *fièvre récurrentosique*, and *fièvre-paludosique*, the latter, it should be added, being altered in Dr. Arbulú's letter to paludiasis. The adoption of this scheme would entail two names, differing only in their termination it is true, for many clinical conditions: thus, to quote from the memorandum, inflammation of the kidney not proved to be bacterial—for example, that due to alcohol—would still be called nephritis, whereas that undoubtedly caused by the gonococcus would take the title nephrosis; similarly, this nomenclature would contain endocarditis and endocardosis, phlebitis and phlebosis, appendicitis and appendicosis, pleurisy and pleurosis. On behalf of the scheme it might indeed be urged that a very similar use of two terms is often seen now. For example, at first inflammation of the pleura is called simple pleurisy; later, after the causal factor has been determined, it may be spoken of as tuberculous or pneumococcic pleurisy, as the case may be. But the points raised above show the reason for much careful consideration before finally agreeing to an alteration which, though logical and consistent at first sight, would entail considerable disturbance and difficulties.

THE HOME AMBULANCE SERVICE.

THE Home Service Ambulance Committee of the Joint Council of the British Red Cross Society and the Order of St. John completed a year's work at the end of October. The ambulances in each county are under the general direction of the County Director; the number at work is 281, and the number of cases carried during the year was 31,255. The intention is to have an ambulance station at every fifteen miles, and it seems probable that this aim will shortly be attained. In setting on foot on a large scale an entirely new organization for the transport of the sick, as has been the task of the Committee, it was inevitable that results should vary with variations in the efficiency and thoroughness of the local administration. A great demand was made on all county directors and their staffs in devising the best means for developing the ambulance services on lines which would most fully meet the needs of each county. The demand was willingly met in all cases, but, as was to be expected, since the whole scheme was an experiment, the degree of success has varied considerably. The returns show that the extent to which the ambulances have been used has not been a matter so much of density of population or lack of existing means of transport, as of the labour, enthusiasm, and initiative displayed by individual organizers. Where a strong local committee exists, where special efforts have been made to make known the existence of the ambulances, and in particular in counties where an officer has been specially appointed to direct the ambulance service, a large number of patients have been carried, even in rural areas, and financial difficulties have been easily overcome. Many of the ambulances first issued were found too heavy for the work, and lighter ambulances, which are now being supplied, will not only be more suitable for country roads, but less expensive to maintain. The Committee is purchasing Ford chassis, and the work of constructing ambulance bodies for them is carried on in its own workshops. The difficulty of erecting on a short chassis an ambulance body which will provide ample room for the patient without undue overhang, has been surmounted; patients report that the new cars run most smoothly. In some areas the ambulances have been used to carry school children to clinics for periodical examinations, and also to remove children from hospitals after operations for tonsils and adenoids. The executive officers are in consultation with the Ministry of Health and the Education Committee of the London County Council, and it is anticipated that the use of the ambulances for these purposes will be considerably extended. The ambulances are also used, both in the country and in London, to carry pensioner patients for hospital treatment, and the Ministry of Pensions has now invited the Committee to undertake the same work in Wales.

NATIONAL RELIEF FUND HOSPITAL GRANT.

THE Executive Committee of the National Relief Fund has appointed a special committee to advise it as to the distribution of the English and Welsh share of the grant voted towards the reduction of the war deficits of the voluntary hospitals of the United Kingdom. The total grant is £700,000, and the amount applicable to England and Wales is £560,000. The Distribution Committee consists of Sir George Murray (chairman), Sir Napier Burnett, K.B.E., M.D., the Rev. G. B. Cronshaw, Treasurer Radcliffe Infirmary, Oxford, Miss Mary Macarthur, Sir Arthur Robinson, K.C.B., Secretary of the Ministry of Health, and Viscount Sandhurst. Since the amount available will not be sufficient to allow of all deficits being paid off in full, the Committee of the Fund has decided that assistance must in general be limited to hospitals having a resident medical staff and at least fifty beds. In special cases, however, the Distribution Committee has a discretion to recommend grants to hospitals with less than fifty beds. No grant will be made in cases where the deficit for the five years ending December 31st, 1919, is less than £500; and cottage hospitals, convalescent homes, and sanatoriums are definitely excluded. Application forms have now been issued to all hospitals eligible for assistance.

DR. BARNES OF CARLISLE.

DR. HENRY BARNES, who was President of the British Medical Association when it held its annual meeting in Carlisle in 1896, has recently been appointed president of the Cumberland Infirmary, and the members of the honorary medical staff took advantage of the occasion to present him with a silver inkstand as a mark of their esteem and regard. The presentation was made by Dr. Lediard, senior surgeon, who said that he had been associated with Dr. Barnes as a colleague for forty years. Dr. Barnes's own association with the Infirmary covered forty-seven years, for he was appointed physician in July, 1873. He held the appointment with distinguished success for thirty years, and soon after his retirement he was elected chairman of the Committee of Management, a position he held until 1910. During his term of office it was decided to extend the buildings, and the new wards of the Edward wing were opened in 1912. The extension also included nurses' new quarters, and, in recognition of Dr. Barnes's services, that part of the new building was called the Barnes Wing. Dr. Barnes, in acknowledging the presentation, recalled that the foundation stone of the Infirmary was laid in October, 1830; owing to various difficulties, however, it was not open to patients until 1842. His uncle, Dr. Barnes, was the real founder of the Infirmary, and its first physician. The first surgeon to the Infirmary

was Mr. Page, and one of his successors was Mr. Herbert Page, afterwards surgeon to St. Mary's Hospital. In conclusion, Dr. Barnes said that the financial outlook for the Infirmary was serious; but Dr. Lediard had previously said that Dr. Barnes himself was a magnetic collector of funds, and a sound business director as well as a genial colleague.

THE EFFECT OF CERTAIN DIETARY DEFICIENCIES ON THE ADRENALS.

In a paper communicated by Mr. W. B. Hardy, F.R.S., to the Royal Society on November 11th Mr. C. H. Kellaway gave an account of an investigation carried out in order to throw further light on the important observations recently made by Colonel McCarrison concerning the increase in size and in content of adrenalin of the suprarenals of pigeons fed on polished rice. Colonel McCarrison's observations on this subject were first published in this country in this JOURNAL on February 15th, 1919. A fuller account appeared subsequently in the *Indian Journal of Medical Research*. Mr. Kellaway confirms McCarrison's observations. The changes described by McCarrison in the adrenal glands were found constantly by Kellaway in pigeons when the diet consisted of polished rice alone, or when an adequate ration of protein (casein rendered free from fat and from accessory factors by repeated extraction with alcohol and ether) or fat was added to the dietary, and were associated with the appearance of polyneuritis. The daily administration of a sufficient amount of "marmite" to the diet of polished rice prevented these changes from occurring. An attempt was made to explain the enlargement of the adrenals as being due partly to congestion and oedema of the gland tissues, and partly to the storage in the cortex of the gland of lipoids set free by the breaking down of body tissues, which occurs in birds fed on diets deficient in the water-soluble B factor. The investigation of the cholesterol content of the adrenals of normal and polyneuritic birds did not support this theory of lipoid storage. The increased residual content of adrenalin was attributed to diminished output of adrenalin, as a result of the greatly lowered metabolism in birds fed on deficiency dietaries. The histological appearances of the glands suggested obstruction of the venous outflow from the medulla by cortical hypertrophy as an additional cause. Oedema in birds fed on deficient diets was of infrequent occurrence, and could not be produced by the daily administration of large doses of adrenalin. Kellaway is of opinion that it is not causally related to increased output of adrenalin. He points out that this view is in harmony with the more recently expressed views of McCarrison.

THE ENDOCRINE GLANDS AND DENTAL DISEASE.

THE literature on the influence of the ductless glands on metabolism is enormous, and to this must be added the considerable discussions on the interaction of the endocrine glands and on the conception of pluriglandular insufficiency. It must be admitted that on these seductive problems hypothesis has often outstripped solid knowledge. The effect of calcium salts on metabolism has also aroused much attention, and the part played by the endocrine glands, especially the parathyroids, in the calcium content of the blood has been investigated. Tetany has been thought to depend on excessive loss of calcium from the body, so called calcium diabetes, due to absence or deficiency of parathyroid secretion, and there is no doubt that the administration of calcium rapidly relieves the symptoms of tetany. In 1918 Howland and Marriott proved that the calcium content of the blood is greatly reduced in tetany, but, though admitting that there are many points of resemblance between the tetany of parathyroidectomized dogs and the human disease, they concluded that there is not sufficient evidence to show that infantile tetany depends on an organic change or even on a functional disorder of the parathyroids. The uncertain state of physiological knowledge as to the relation between the endocrine glands and calcium metabolism must necessarily be kept in mind in practical medicine, but it should not exert undue influence, for it must be admitted that the empirical success of drugs has in the past usually preceded the scientific rationale of their action. These considerations apply to a suggestive paper on "The effect of endocrine derangement on the teeth" by Mr. F. W. Broderick,[1] in which, from a review of current physiology and from some observations on the alkalinity and calcium content of the saliva, the hypothesis is put forward that the disposing cause of dental caries is a deficiency of calcium, or, as it is called, calcium hunger, due to an upset of the normal balance between the endocrine glands. A deficiency of calcium in the blood, he believes, diminishes the alkalinity of the saliva and the calcium content to which the alkalinity is in great part due. By giving extracts of the adrenal and pituitary glands combined with either thyroid or parathyroid extract Mr. Broderick was able to increase the alkalinity and calcium content of the saliva. If the views, first, that the exciting, as opposed to the dsipsoing, cause of dental caries is acid fermentation of carbohydrates, and secondly, that lactic acid will combine more readily with a salivary salt than with the calcium of the enamel of the teeth, be accepted, the bearing of the alterations thus produced in the saliva by the administration of endocrine extracts is obvious. Arrested caries, on the other hand, is regarded as the outcome of hypercalcification, such as may be induced by treatment. The antagonism between pyorrhoea and dental caries is correlated with their association with opposite conditions of calcium—excess of calcium in pyorrhoea, deficiency in caries. In support of his contention that the glands of internal secretion, by their effect on the calcium content, influence the incidence of dental disease Mr. Broderick brings forward a number of clinical arguments; and, while he modestly admits that his conclusions may not carry complete conviction, it must be agreed that he has courageously begun an attack on a difficult problem, on which much more light and research are required before a final decision can be accepted.

AT the request of the General Medical Council we publish this week in the SUPPLEMENT, at page 155, a list of retired medical officers of the Royal Navy or Army Medical Service who have not responded to the inquiries of the Registrar made by him under Section 14 of the Medical Act, 1858.

THE Royal College of Surgeons of England has decided to hold an additional final examination for the Fellowship. This extra examination, which will begin on February 11th, 1921, has been arranged because, owing to the absence of so many surgeons during the war, the number of candidates eligible to enter for the examination is very large.

[1] F. W. Broderick: *Brit. Dent. Journ.*, 1920, 955-975.

ON St. Andrew's Day, November 30th, the retiring President of the Royal Society, Sir Joseph Thomson, O.M., presented this year's medals. The Copley Medal is awarded to Dr. Horace T. Brown for his work on the chemistry of carbohydrates, the assimilation of atmospheric carbon dioxide by leaves, and on gaseous diffusion through small apertures. The Royal Medals are awarded —one to Dr. William Beatson, for his contributions to biological science, and the other to Professor G. H. Hardy for his researches in pure mathematics. Professor R. H. Biffen receives the Darwin Medal for his work on scientific principles applied to the breeding of plants, Lord Rayleigh the Rumford Medal, Professor O. W. Richardson the Hughes Medal, and Mr. C. T. Heycock the Davy Medal. Sir David Prain, I.M.S.(ret.), has been re-elected Treasurer, and among the members of the new Council are Sir Walter Fletcher, Sir William Leishman, and Dr. Sidney Martin. The anniversary dinner was held on the same evening, when the new President, Professor C. S. Sherrington, M.D., took the chair, and Dr. Horace Brown replied to the toast of the medallists.

Medical Notes in Parliament.

The Ministry of Health Bill.

INCIPIENT MENTAL DISORDER HOMES.

CLAUSE 10 of the Ministry of Health Bill was considered in Grand Committee on November 24th, when the provision with regard to the period during which a person suffering from incipient mental disorder might be received without certificate in a home or institution—"for a period not exceeding six months or such longer period not exceeding in all twelve months as may be approved by the Minister and whether for payment or not"—was amended by the omission of the words after "six months." Dr. Addison said that the time during which a person might be in one of these places as a patient was thus limited to six months. His view was that within that period the question of incipiency would be determined.

A long discussion took place on an amendment by Earl Winterton to leave out the words "whether for payment or not." Before he could agree to this provision he wanted to be assured by the Minister of Health that it was absolutely necessary to encourage these homes for the mentally afflicted to be run at a profit. The whole idea was repugnant to him, particularly where ex-soldiers were concerned. In their case he thought the State should be prepared to act.

Dr. Addison pointed out that the words in the clause were not "for profit," but "for payment." That was an important distinction, though he did not say that it would prevent profit being made on such homes. The Ministry of Pensions made payments for cases of this class in certain institutions, and hospitals now charged patients who could afford to pay. In such cases payments were for services rendered. The aim, particularly in regard to the ex-service men, was to obtain a more extensive development of out-patient clinics and more facilities for them at the voluntary hospitals. It might be possible for the experts attached to mental hospitals to attend out-patients at these places and to develop treatment under the general hospital scheme at institutions which were not labelled "lunacy" at all, obtaining at the same time skilled advice from the members of the staff. He had received a petition signed by 100 members of Parliament suggesting that provision should be made for this class of patient.

Dr. Nathan Raw concurred in the opinion that mental disease should be treated in the same way as any form of physical disease. It would not be possible to treat all cases of incipient mental disorder without profit. The only alternative was for the State or the proper authority to deal with all these cases, but in the present temper of the House that was out of the question.

Dr. Farquharson said that the risk of interference with liberty could be met simply by requiring that a report must be submitted in writing to the Minister of Health before a person, suffering from incipient mental disorder of recent origin, voluntarily resident in a house or home, was certified a lunatic.

Dr. Fremantle thought that the proper course was for these cases of incipient mental disorder to go to general hospitals. The ideal condition was that lunatic asylums should no longer be asylums where people were shut up for the protection of themselves and the public (which was the basis of the lunacy laws), but that they should be mental hospitals with a view to general treatment, improvement and recovery with as little delay as possible. The Mental Asylums Committee of the London County Council felt that if provision could not be got in any other way, the London County Council, as the authority dealing with the sufferers of London, must make provision for them in the ordinary mental asylums or hospitals. The county mental hospitals should be allowed to take in voluntary boarders, as that seemed the only way of introducing up-to-date treatment for the working classes.

Dr. Murray felt strongly that it was desirable to avoid the stigma of lunacy in dealing with these people. That was why he favoured having mental cases treated at general hospitals, and he pointed out that under Clause 11 of the bill the local authorities would have an opportunity of contributing to these general hospitals. He had no fundamental objection to these homes being run for profit if they were properly inspected and supervised by the Minister of Health.

Dr. Addison announced that he should accept a number of amendments for the safeguarding of these homes, as put down by a private member, and sought to get a decision on Earl Winterton's amendment. Earl Winterton declined to withdraw it, and, in the absence of a quorum, a division could not be taken before the Committee adjourned.

When the Committee resumed, on November 25th, Earl Winterton stated that since the previous meeting he had had the advantage of hearing the views of some of the Civil Service representatives of the Ministry on this clause, and they had lessened his objection to the provision as to payment. He therefore withdrew the amendment, on the assurance that further safeguards would be introduced.

Dr. Nathan Raw moved an amendment to remove the restriction under which a person suffering from a relapse in a case of insanity could not be treated under the clause.

Dr. Addison moved an alternative amendment to meet the point made by Dr. Raw. Referring to the arguments for the use of general hospitals, he said that as the law stood a hospital would not put aside a ward for the treatment of mental disorder on the same lines as for the treatment of other disorders, because that would involve the risk of infringing the provisions of the Lunacy Law as it stood. If the proposals in Clause 11, enabling an authority to take over a Poor Law infirmary, were carried, they would be able, with this clause previously inserted in the bill, to set aside a ward for the treatment of this class of patient. The Lunacy (Scotland) Act, 1866, contained in Section 13 provision on the lines of this clause. A considerable number of these cases had been sent to Scotland from England for this form of treatment.

Dr. Fremantle moved a new section to provide that this class of patient might be received in existing asylums, but on appeal from Dr. Addison, withdrew it.

An amendment by Dr. Raw, that a patient should give forty-eight hours' notice of desire to leave, was accepted by the Minister. Dr. Raw pointed out that in cases with homicidal or suicidal tendency it was very desirable there should be time for communication with friends or relatives. The word "discharged" was afterwards, at the instance of Dr. Addison, deleted in favour of the word "leave" so as further to free the clause from any lunacy suggestion. It should be added that the clause provides for the personal delivery of notice to the superintendent of the home, or alternatively of sending it by post to the Minister.

Dr. Raw moved an amendment that after the words "consent in writing" (in reference to admission to a home), the words should be inserted "or in case of mental incapacity by consent in writing of his nearest relative."

Dr. Addison said that this was an important point, and he should vote for the amendment. The advantage on one side was that it would enable a large number to be treated who would otherwise be shut out. The disadvantage on the other side was that it might open the door to a person getting somebody put in for improper reasons. There would, however, be the safeguard that if they were in they could walk out at any time. On a division, 14 members voted for the amendment and 20 against.

At the instance of Dr. Fremantle the word "recommendation" was substituted for that of "certificate" in reference to the letter of a medical man required before a person could be admitted. A further amendment moved by Dr. Fremantle—that only one recommendation and not two, as was proposed in the clause, should be required—was accepted by the Committee.

Dr. Addison afterwards accepted the following additions, moved by Mr. Betterton, to subsection (2):

> No institution, home, or house shall be approved by the Minister unless the superintendent, or other person, by whatever name called, having charge thereof undertakes to reside in the house;
>
> In the case where the institution, home, or house approved by the Minister is under the control of two or more persons, and if any of such persons dies leaving the other surviving, and one of the survivors gives a written undertaking to reside on the premises, the condition imposed in the previous subsection shall be deemed to have been complied with;
>
> No material alteration or addition shall be made to any institution, home, or house approved by the Minister for the purposes prescribed in this section without the previous consent in writing of the Minister;
>
> In the event of a breach of any of the conditions in this section contained, the approval by the Minister of any institution, home, or house may be withdrawn without prejudice to the liability of any person to be proceeded against for an offence under any Act.

Mr. Thomson moved as an addition to Subsection 3, that no members of the Lunacy Board of Commissioners, or any official of the said board, should be appointed as an inspector of the homes. His object, he said, was to ensure distinctly separate administration.

Colonel Wilson, for the Government, said that it was proposed by the Ministry that the inspection of these institutions should be carried out by medical officers on the staff of the Ministry, but it was obvious that the hands of the Minister must be left free. In certain special cases it might be necessary to utilize the experience of the Board of Control, and the Minister should be left free to do so.

The amendment was withdrawn.

Dr. Raw, as an addition to Subsection 3, proposed that it should be lawful for the council of any county or county borough, on such terms and conditions as might be approved by the Minister, to contribute to the expense of providing and maintaining any institution approved by the Minister for the purpose of the section.

Dr. Addison said that in normal times he would have supported the amendment, but he was afraid that under the present circumstances it would have a short life. If the Committee could be persuaded on Clause 11 to allow local authorities to take over Poor Law institutions, that would be the appropriate place for the treatment of these cases. Then no question would arise, as they were already rate-supported institutions, and would be open for the treatment of this class of cases as for any other. After further discussion the amendment was, by leave, withdrawn.

The Committee afterwards divided on the adoption of the clause as amended; this was carried by 17 votes to 10.

VOLUNTARY HOSPITALS.

Earl Winterton then moved the postponement of Clause 11. He did not believe that the voluntary hospital position was hopeless at the present time. The proposal, if it were carried out, would push the voluntary hospital system, which nobody denied was in a critical state, over the precipice to destruction. He therefore said, "Give the voluntary hospitals a chance to put their house in order, appoint a committee or a commission of inquiry into the whole position, and if that reported the position as hopeless and helpless, let the Government take their courage in both hands and bring forward a bill to take over the hospitals *en bloc*."

Mr. Ormsby-Gore, in seconding, said that a Committee should be set up to consider the whole question of the Poor Law hospitals and of the institutional health services of the country. As part and parcel of the hospital question should be included that of grants for clinical education, which were at present grossly inadequate. The Committee should consider the relation of the insurance system to the hospitals and the question of the payments now made by the State for preventing disease. Further, it would not be justifiable to proceed with the clause unless Parliament was prepared to tackle the nursing homes.

STATEMENT BY DR. ADDISON: COMMITTEE ON FINANCE.

Dr. Addison undertook to make a statement at the next meeting of the Committee. When the Committee reassembled, on November 30th, he said that the question of the voluntary hospitals was quite distinct from that of the Poor Law hospitals, and the clause would still stand so far as the reference to the Poor Law hospitals was concerned.

Every member of the Committee, to whatever party he belonged, would entirely agree with the tribute which was paid on the last occasion to the voluntary hospitals. It was impossible to overestimate the services which they had rendered, in some cases for centuries. He himself had been a member of the teaching staff of a hospital which went back to the Wars of the Roses. Was the position of the voluntary hospitals hopeless? He trusted that it was not. These institutions had been responsible for furthering the scientific progress of medicine to an extent which did not hold good of any other set of institutions in the country. It would be folly to do anything to cripple the initiative and enterprise which had been associated with them, and which was linked up so closely with the progress of medical science. Some figures had been placed before the Committee for the year 1918 showing that the discrepancy between the income and expenditure of the hospitals was not so great as had been imagined, though it had to be remembered that some of that income was in respect of services rendered in connexion with the war. But for the five years previous to 1918, whilst in the case of the provincial hospitals the ordinary income was £1,300,000 below the ordinary expenditure, and in the case of the London hospitals nearly £900,000 below, the accounts were practically squared if legacies during the same period could be reckoned as ordinary income. More recently, of course, the cost of management and of supplies had greatly increased, and in many districts contributions had not by any means kept pace. It was clear also that to take hospitals in the mass might give a misleading impression, because the conditions differed greatly in different cases, and any relative prosperity that there might be was not equally distributed. During the early summer he had conferred with the representatives of different London hospitals and others, and as a result of those conferences it was eventually arranged that a large sum of money from the National Relief Fund and a further large sum from the King Edward Fund should be available. He also made the suggestion that hospitals should, as far as possible, work together, and he was sure that a great deal could be done by improved organization in this respect, and by better methods of collecting contributions; also, to some extent—though it would be a mistake to exaggerate what could be obtained from this source—material assistance might be forthcoming in the shape of contributions from patients, who were generally willing to pay.

Therefore, it was only with the greatest possible reluctance that the provision was inserted in Clause 11 to empower county councils to make contributions out of the rates in aid of the hospitals. The question had been asked whether this would not dry up the sources of voluntary contributions. But in the case of maternity and child welfare and other services voluntary associations were still flourishing despite rate aid, and in some respects were flourishing more than ever. Of course, everything depended upon the way in which these matters were arranged, but it had been found, particularly in infant welfare work, that by careful management voluntary contributions need not cease to flow. Everyone felt the enormous importance of making no false step in a matter which affected the voluntary hospitals, and it was fair to say that by their own efforts [Dr. Addison appeared to mean the Ministry's effort] a material contribution had been made to the assistance of the hospitals during the last few months.

Nevertheless, at a meeting at which several members of both Houses of Parliament were present, it was urged upon him that an endeavour should be made to sustain the voluntary system if at all possible, and it was finally suggested by Colonel Mildmay that a committee of inquiry should be set up in this matter, and that it should be an independent committee in the sense that no doctor nor anyone concerned in hospital management, whose thoughts would naturally recur to their own institutions, should have a place on it, and that the chairman also should be a very impartial person. This committee was to report to the Minister. He had resolved, therefore, to appoint a small and independent committee of this kind to consider the financial position of the voluntary hospitals and to report as early as possible. Such a committee, if it was to report within a relatively short time, must not take too wide a range of inquiry; it must also be small, independent, and capable of dealing with the financial question in a definite way. The position of the voluntary hospitals was such that it was impossible to stand aside with no considered effort or scheme. He accordingly proposed to appoint such a committee forthwith. Its reference would be "to inquire into and report upon the financial position of the voluntary hospitals throughout the country and to make recommendations." As the suggestion was originally made, he might only have got a report, and what he wanted was constructive recommendations. The effect of accepting the suggestion pressed upon him—and he was only too glad to accept any suggestion which would bring the hospitals upon a solid basis—was that this particular proposal in Clause 11 would be deleted so far as the reference to voluntary hospitals was concerned. The ground would then be cleared for this Committee. He was sure that the goodwill and assistance of the British Hospitals Association and of the hospital authorities generally throughout the country would be forthcoming. In reply to questions from members, he said that he thought the membership of the committee should be restricted to five; it should be a strong, impartial, and independent body, and he did not suggest that any one identified with hospital management should be on it. Asked whether Ireland would be included in the reference, he said that the inquiry would, he believed, be limited to Great Britain.

Dr. Addison then went on to speak of the remaining part of the clause—that relating to Poor Law hospitals. He wished to emphasize the fact that this part remained in the bill. There were altogether 94,000 beds in Poor Law hospitals, which was twice as many as in voluntary hospitals, and out of that 94,000 the empty beds, taking an average from different periods of the year, numbered 30,000. If these beds were to be made available and an endless multiplicity of authorities was to be avoided, so that the needs of a district could be dealt with in a large way, the units of government must not be the 635 Poor Law authorities in the country, but nothing less than the council of a county or county borough. It was quite impossible for the Ministry of Health to stand by and see this waste of accommodation whilst there were multitudes of people who were suffering from lack of it. Therefore, he hoped that, while dropping the proposals affecting the voluntary hospitals, the proposals for making available in some effective fashion the beds in the Poor Law hospitals would receive the support of the Committee.

In the discussion which followed, Mr. Ormsby-Gore strongly criticized the amended proposal as unsatisfactory, and urged that for the emergency guardians should be empowered by the county councils to set apart beds for the treatment of the necessitous poor. Earl Winterton, though not so greatly opposed to the amended scheme of the Minister, thought it would be better to await a prompt report by the Committee of Inquiry on the whole question. Sir Ryland Adkins, speaking as the vice-chairman of the County Councils Association, said he believed that the county councils were prepared to act on the lines laid down where the problem was most pressing. Several Labour members spoke against the project, deeming it inadequate and favouring either rate or State supported hospitals on a broad scale. Dr. Farquharson vigorously supported the plan. He referred to a thoroughly equipped, up-to-date Poor Law hospital near Newcastle, which was standing empty and could be admirably utilized in this way.

In the end, Dr. Addison's amendment to subsection (*a*) was carried by 23 votes to 7. Two or three Labour members and some others abstained from the division. The first portion of the clause now reads:

> (1) The council of a county shall, on such terms and conditions as may be approved by the Minister, have power
> (*a*) to acquire by agreement with any Poor Law authority, any Poor Law hospital or infirmary belonging to that authority within their area, and maintain it as a hospital.

Pensions Administration: Committee of Inquiry.—The following constitute the Committee appointed to inquire into the system and methods of administration of the Ministry of Pensions, with special reference to the working of the regional and local committee systems and the arrangements for the issue of pensions:

Major Tryon, M.P., Parliamentary Secretary to the Ministry, chairman; Miss E. Kelly, Member of the Portsmouth Local War Pensions Committee; Captain H. H. C. Baird, D.S.O., editor of *The Service Man*; Major R. Barker, M.P.; Mr. G. W. Chrystal, Permanent Secretary to the Ministry of Pensions; Mr. A. T. Davies, M.P.; Lieut.-Colonel J. P. Nisbet Hamilton Grant, chairman of Perth County Local War Pensions Committee; Sir H. P. Harris, M.P.; Major V. L. Henderson, M.P.; Mr. E. H. Hodgson, Assistant Secretary and Director of Establishments, Ministry of Pensions; Mr. C. F. Adair Hore, Senior Assistant Secretary Ministry of Pensions; Mr. Walter Peel, Representative of the Association of Local War Pension Committees; Sir Samuel B. Provis, late Permanent Secretary to the Local Government Board; Mr. R. E. Westaway, Regional Director of Ulster, and Mr. Robert Young, M.P.

The first meeting of the Committee was held at Cromwell House on November 25th. It was decided, in view of the wide scope of the inquiry, to divide it into five sections, each of which will be dealt with by a subcommittee who will report to the main Committee, namely: (*a*) Local war pensions committees and regions; (*b*) awards and special grants committee; (*c*) treatment and medical boards; (*d*) pension issue office; (*e*) officers. Before taking evidence the members of the Committee will visit the branches of the Ministry and will examine the regional machinery. Major C. G. C. Hamilton, M.P., is unable to join the Committee, and Major C. E. Breese, M.P., and Major C. F. Entwistle, M.P., have been added.

Lunacy Certificates.—Dr. Addison, on November 24th, assured Mr. Tyson Wilson, that any information forwarded to him as to the alleged tampering with documents upon which persons were committed to asylums would be immediately inquired into.

England and Wales.

LEEDS UNIVERSITY APPEAL.

A PUBLIC meeting was held on November 25th at the Leeds Town Hall, under the presidency of the Lord Mayor, to inaugurate the appeal for funds for the University of Leeds. The university is asking the public of Yorkshire, and others interested in the progress of higher education in the county, for £500,000, and the Vice-Chancellor (Sir Michael Sadler) was able to announce to the meeting that towards this fund gifts amounting to £112,800 had already been received or promised. Amongst those who spoke in support of the appeal were representatives of local authorities, who contribute largely to the revenue of the university, and a number of prominent professional and business men. The number of students in the university is now nearly three times as large as before the war. Most of the departments are overcrowded, and the annual expenditure of the university has enormously increased, as a necessary consequence of the new conditions created by the war. New laboratories are required in nearly all the university's departments of pure and applied science and for the school of medicine, and new buildings are needed for the department of agriculture, the school of dentistry, the university library, the students' union and gymnasium, and as halls of residence for men and for women students.

TUBERCULOSIS IN LANCASHIRE.

The activity of county councils in dealing with tuberculosis in their respective areas is by no means uniform. From the report for the year 1919 of the central tuberculosis officer for Lancashire it would appear that in that area at any rate there is no slackening of effort. Divided into five large dispensary areas and two sub-areas, the county is well supplied with medical and lay workers. Five senior consultant tuberculosis officers, with eight assistant officers and thirty health visitors, maintain a close watch over such cases of the disease as are brought to their notice, applying all the known means of relief appropriate to each case. But in Lancashire, as elsewhere, a very considerable number of cases are never notified at all, while others apply for treatment only when the disease is too far advanced for recovery. The need for control before the appearance of bacilli in the sputum is illustrated by the figures given in the report, the statistical tables in which are in all respects worthy of careful study. Those dealing with mortality show a marked change for the better, due, no doubt, in part to improved social conditions since the war, but also to better understanding of the hygienic precautions in the household, the result of persistent teaching on the part of trained visitors, and to the vigilance of after-care committees.

HOME NURSING IN LONDON.

The executive committee of the Central Council for District Nursing in London has issued a memorandum with regard to the home nursing in London of certain classes of patients who differ on the one hand from the usual patients of district nursing organizations established for the nursing of the sick poor in their homes, and on the other from the usual classes of patients who are able to pay full fees. Schemes for nursing these special groups of patients have been formulated in the provinces, but not in London. The first class of patients concerned comprises those who live in flats, or other rooms, without additional available accommodation for private nurses (even if there is ability to pay full fees). For these patients it is suggested that a nurses' co-operative association is needed. The suggested scale of fees is 3s. 6d. a day, or £1 a week for a daily visit, and 5s. a day, or 30s. a week for two daily visits. The earnings, which should range from four to six guineas a week, would be distributed on a co-operative basis. The second group of patients for whom special provision is thought to be necessary is found among those of the professional classes who are unable to afford the ordinary fees of private nurses. The third class consists of tradespeople and others not hitherto included in the work of the district nurses, but urgently needing nursing assistance. For the second and third groups of classes somewhat lower scales of fees are suggested. Efforts to meet these three classes of case seem so far in London to have been sporadic and unorganized, and this attempt to make provision for them will be regarded with satisfaction by medical men.

Scotland.

FINLAYSON MEMORIAL LECTURE.

MAJOR-GENERAL SIR WILLIAM LEISHMAN, F.R.S., delivered, on November 16th, the Finlayson Memorial Lecture in the hall of the Royal Faculty of Physicians and Surgeons, Glasgow. Dr. A. Freeland Fergus, the president, in introducing the lecturer, said that he was a son of the late Professor Leishman of Glasgow, whose memory they all held in affectionate regard. Sir William Leishman took as his subject "Enteric fevers in the British Expeditionary Force, 1914–1918." From the time he became professor of pathology at the Royal Army Medical College, this subject and the general problem of the protection of our army against enteric fever in peace and war had formed a very large part of his work. As the result of laboratory researches by himself and his colleagues, they eventually reached the goal towards which they had worked—namely, clear statistical proof of the protective effect of vaccine; possessing that they were able to convince their chiefs and the Army Council that antityphoid inoculation was a safe and useful procedure, and permission was obtained for its general employment in the army, though on a voluntary footing. Two years before the war they had made arrangements for the maintenance of a reserve of vaccine large enough for the first needs of an expeditionary force, and had worked out in detail a scheme for a great expansion of its manufacture. The effects of inoculation upon a soldier's physical capacity were determined by experimental observations carried out at Aldershot two years before the war, and thus in August, 1914, they could give definite replies to the questions raised by staff officers anxious for the smooth working of their mobilization schemes. The lack of compulsory powers in regard to inoculation heavily handicapped the Medical Department. Nevertheless, they were able to inoculate from 25 to 30 per cent. of the original Expeditionary Force before they crossed the Channel, and it was not long before the inoculation of the troops in France rose to figures fluctuating between 90 and 98 per cent. The lecturer showed statistical charts illustrating the deterring effect of inoculation upon the incidence and death rate of enteric fever. Side by side with this went on the splendid work of their colleagues in the Sanitary Branch, which carried out with brilliant success general measures relating to drinking water, food protection, and many other details. Professor Muir, in thanking Sir William Leishman for his lecture, remarked that the measures taken to deal with enteric fever during the war had not only achieved the practical result of saving lives and preventing disablement, but had also yielded accurate and valuable knowledge on this important subject.

THE SCOTTISH CONSULTATIVE COUNCIL.

We mentioned a few weeks ago that a report of the Scottish Consultative Council on Medical and Allied Services, appointed by the Scottish Board of Health, had been completed. We are now informed by the Board that the report, which is an interim report, is being printed as a parliamentary paper, and will be published in the course of a few days.

India.

MATERNITY AND CHILD WELFARE.

LADY CHELMSFORD, who from the beginning of her husband's term of office as Viceroy has taken a deep interest in maternity and child welfare, had the satisfaction before leaving Simla of opening a maternity and child welfare centre, which has been established by the Simla municipality and is to bear her name. The All India Maternity and Infant Welfare League, formed by Lady Chelmsford, established a training school at Delhi, and the lady health visitor to the Simla institution was trained at Delhi. She will have under her trained Indian dais to

assist in the work of the centre and pupils will be trained there. In declaring the centre open Lady Chelmsford said that the League had an endowment of six lakhs; most of this had been contributed by the Indian princes, and it was important to secure the support of the general public so that other municipal bodies in India might be induced to follow the example of the Simla Committee. Infant mortality is very high in India. A resolution of the Central Provinces Administration on the annual report of the Sanitary Department states that in 1918 the infant mortality was 299 per 1,000 births, as against 227 in 1917. The remedy, it is recognized, must be the education of the people in the elements of hygiene and the awakening of the conscience of municipal authorities. Under the new system of government, when public health will be transferred to the charge of the people's representatives, it will rest with them to overcome the prevailing apathy among the public and in local bodies.

THE LEPER PROBLEM.

Lady Chelmsford has also spoken very forcibly on the need for Indians themselves to take an interest in the victims of leprosy. The Mission to Lepers, which has done so much, has hitherto been financed by subscriptions from other parts of the Empire. Organized attempts to interest the wealthy classes of India in the work have only recently been made; substantial sums have been provided by Indian sympathizers, but far more money is required to meet the immediate needs of the sufferers. There are 250,000 lepers in India. Less than 10,000 are accommodated in the leper asylums in the country, and the Indian press is emphasizing the fact that people of every class and every race resident in India are liable to be attacked by leprosy.

THE BOYCOTT.

At a meeting of the Lucknow Medical Association a resolution was passed protesting against the reports of the Esher and Lovett Committee and declaring that the authorities showed disregard of the interests of the Indian medical profession. Holding these views the meeting advised the Indian medical profession not to meet in consultation members of the Indian Medical Service in private practice. Similar resolutions were adopted by the Allahabad Medical Association at a meeting held on October 29th.

PLAGUE.

Reports for September appear to show a tendency to an increase in the number of cases of plague, the number of deaths from plague during September being approximately 10,086, against 5,842 in August, and 4,834, 6,945, and 3,527 in the corresponding month of 1919, 1918 and 1917 respectively.

ASSISTANT SURGEONS' CONFERENCE.

The fifteenth session of the All India Subassistant Surgeons' Conference will be held in Delhi on December 17th, 18th and 19th, 1920. With this year's conference medical, surgical, sanitary, indigenous drugs, and infant welfare exhibitions will be held, and the Viceroy will perform the opening ceremony.

Correspondence.

MALIGNANT MALARIA CONTRACTED IN BRITAIN.

SIR,—With reference to the interesting case reported by Professor E. E. Glynn and Dr. J. C. Matthews in the JOURNAL of November 27th, I write to express a hope that efforts will be made to ascertain whether the patient had ever had any form of subcutaneous, intramuscular, or intravenous injection (such as one of morphine) from a week to a month before her illness commenced—that is, during September. The point is essential as regards the cause of the malaria infection, because a number of cases of malignant malaria occurred in Britain during the war as the result of such injections (I am not free to give details). I wonder also if the dentist who removed some of the patient's teeth on September 14th had just previously dealt with any old case of malaria. Infection by direct blood-to-blood communication is, I consider, proved by the war experiences referred to.—I am, etc.,

London, Nov. 29th. RONALD ROSS

THE HOSPITAL PROBLEM.

SIR,—In view of the fact that two separate bodies in the House of Commons have asked the Prime Minister to hold an immediate inquiry into the whole subject of our voluntary hospitals, would it not be possible to call together a meeting of representatives of the medical staffs of our county hospitals? At such a conference it might be discussed whether it was desirable or possible to continue these hospitals on a voluntary basis, or whether it would be better to hand them over to the State or to the ratepayers to control them. A circular letter to the secretary of the staff of each hospital, inquiring whether the staff would be prepared to send a physician and a surgeon to a meeting in London would quickly prove whether such a meeting were deemed advisable. I feel very strongly that such a representative body as the British Medical Association could and should initiate this movement.—I am, etc.,

Oxford, Nov. 24th. W. COLLIER.

*** The Association is taking steps to call such a conference, probably on Thursday, December 16th, 1920.

INTRAVENOUS PEPTONE THERAPY IN EPILEPSY.

SIR,—In regard to Dr. Auld's letter in your issue of November 27th, I would like to point out that in his article of April 24th last the word "epilepsy" does not occur. The sentence in question reads:

> An antigen similar in nature, therefore, to that which provokes asthma in one individual may cause explosive attacks in the stomach or liver or central nervous system or circulatory system, etc., in others.

If, however, epilepsy be implied in the above words, it must be acknowledged that he was the first to suggest, though indirectly, the treatment of that disease by injection of a "peptone" solution. For myself, I did not attach any definite meaning to them, and was led to try this mode of treatment in quite another way—as I stated in my article.

But, after all, questions of priority are not of any moment or interest, and, if this were all, I would not have written to you about the matter. I find it difficult to accept the theories which have been put forward to account for the action of a "peptone" solution—that it should cure some diseases by increasing the coagulability of the blood, others by inducing a violent reaction in the apparatus which regulates the colloidal balance in the blood, and yet others by inducing a tolerance to the anaphylactic poison which is identical with a poison produced in the body by peptone. Such theories appear to me to be somewhat crude applications of our very scanty experimental knowledge of the actions of a "peptone" solution in the blood, or merely exercises in belief. It is surely better to admit our ignorance of the ways in which it acts in disease.

Dr. Auld suggests that the discrepancy in the results I found may be due, in part at least, to "defective linkage," and that better ones might have been obtained by four-day doses. I have, however, tried this, and found that the results were not any better than those produced by a weekly dose.

I am therefore of opinion that the matter is, and will for a long time be, purely empirical. It will only be by cautiously trying variations that we may hope to find the field of usefulness of this treatment and its limitations. It was in the hope that this might be carried out by others who have large numbers of epileptics in their care that I published the results obtained in a small number of cases.—I am, etc.,

Clifton, Bristol, Nov. 29th. F. H. EDGEWORTH.

FUTURE POSITION OF *À LA SUITE* OFFICERS IN TERRITORIAL HOSPITALS.

SIR,—My attention has been called to a letter from Mr. Albert Lucas in your issue of November 20th on the future position of *à la suite* officers in Territorial hospitals. The matter has been considered by the Territorial Subcommittee of the Naval and Military Committee of the British Medical Association, which is of opinion that the *à la suite* system should be abolished, and that appointments to the General Hospital list should only be made

from those officers who have done military training. The question of expansion of the Army Medical Service in time of emergency, including expansion of the general hospital list, is now under consideration by the subcommittee, and note will be made of the suggestions contained in Mr. Lucas's letter.—I am, etc.,

CHARLES BUTTAR,
London, W., Nov. 27th. Chairman of the Territorial Subcommittee.

LIBERTY AND ECONOMY.

SIR,—When the Association is considering the proposals submitted to it for the reorganization of its work, there are two matters which should receive pre-eminent attention:

1. The *preserving of the liberties of medicine* handed down to us from a glorious past, and essential to the maintenance of those qualities which have made English medicine supreme.

2. The *national necessity for due financial economy*. The nation will rightly expect that the statesmen of medicine will not forget in this their grave responsibilities. —I am, etc.,

Exeter, Nov. 26th. W. GORDON.

TUBERCULOUS MILK.

SIR,—I am much obliged to Dr. Cobbett for coming forward on the side of the experimental investigators. I do not think, however, that he has succeeded in proving his statement that there is plenty of evidence to establish immunization in tuberculosis as a fact. What do the experiments described by the Drs. Griffith amount to? Twelve presumably healthy calves were given subcutaneously a dose of "50 mg. of young bovine bacilli," and after a lapse of ninety days had all expired. Twelve other calves that had been treated with smaller graduated doses over a period of three months were then given the same dose of 50 mg. At the expiration of ninety days two of the number had succumbed. The remaining ten were not given the option of living or dying, but were killed outright. All of them when examined were found to contain tuberculous lesions in their internal organs, described as regards nine of them "for the most part slight and unprogressive," and in the remaining calf lesions more advanced than these. I cannot see that this proves anything more but that a certain toleration to large doses of tuberculous poison can be secured by an ascending scale of dosage over a certain period, similar to that obtained by administering arsenic or some other poisons in a similar way. What the nature of this toleration is is very difficult to say. Some few months ago I was referred by Dr. Eastes to Benzon's textbook on bacteriology as containing an up-to-date summary of immunization in tuberculosis. I have not, unfortunately, got the book by me, but I think I am right in saying that it is stated there that the experiments conducted to secure immunization in calves proved very unsatisfactory, and that it was found that tubercle bacilli once introduced into a calf tended to effect a lodgement there and were very difficult to eradicate. The Drs. Griffith's experiments would seem to confirm this. It also states there that von Behring claims to have secured a certain amount of immunization in guinea-pigs for a short period with intravenous injections, but these results have not been confirmed by some other investigators. It also states, I think, that attempts to immunize guinea-pigs against tubercle bacilli, introduced by way of the alimentary tract, proved unsuccessful, as this method of entry is very fatal to guinea pigs. I therefore think it can be fairly said that the experimental evidence is very conflicting, to say the least—that is, up to the date of these experiments. That the human body is able to put up some sort of protection against tuberculosis goes without saying, or otherwise the mortality would be 100 per cent.

I should imagine, as the result of *post-mortem* examinations, that the protection is, if not entirely, at any rate mainly a structural protection—a defensive barrier in the lymphatic glands and pulmonary tissues having for its object either the obliteration of the focus of disease or its ejection on to the nearest surface. If this defensive barrier should give way, as it sometimes does, and if by any chance even a very small tuberculous focus should discharge itself into the circulation, what happens? An acute miliary tuberculosis with rapidly fatal results. This would seem to show that outside the area of the defensive barrier there is very little protection against tuberculosis elsewhere in the body. What I would regard as good experimental evidence would be the following: Vaccinate a dozen or more persons against small-pox, and then let them loose in a district where small-pox is prevalent. This, of course, has been done, and it has been shown that, if not absolutely protected they have secured a very large measure of protection, sufficient to reduce fatal results to almost *nil*. Why not vaccinate children against bovine tuberculosis, not with bacterial products, but a vaccine from an affected calf? It should be no more difficult to prepare than vaccinia from the same animal.

But I know, of course, that Dr. Cobbett makes no such claim for immunity in tuberculosis as can be secured against small-pox; for at the end of his letter he says, "the immunity is not of a high order," "is uncertain, being liable to fail," "is relatively transient," and

> I can only conceive of an immunity which shall have an important influence upon human tuberculosis as caused, not by abortive infections which become cured outright, unless these indeed are frequently repeated, but by chronic lesions which remain for long periods not altogether inactive.

In fact, whatever immunization, if any, is possible, may for all practical purposes be considered a negligible quantity. This, if admitted, of course has a very important practical bearing on the treatment of this disease. —I am, etc.,

EDGAR R. IVATTS, M.R.C.S., L.R.C.P.,
Late Assistant Tuberculosis Officer, Stoke-on-Trent; Resident Officer, Stanfield Sanatorium.
Aylesbury, Nov. 11th.

SIR,—Some of your correspondents have wandered away from one of the main questions—does tuberculous milk account for the majority of cases of tuberculosis in children? I adduced that those who drink less milk have more tuberculosis than those who drink more; that in countries like Japan, where the use of cow's milk in infancy is unknown, primary intestinal tuberculosis is more common (30 per cent. of deaths) than among Europeans and Americans (25 per cent.), and that many children who drank tuberculous milk never got tuberculosis. These are stern facts which go against the milk infection theory. To these must be added Professor Adami's experiments on calves which were fed with tuberculous milk for five months, at the end of which time it was found they were free from the disease.[1]

Does pathology admit a difference between infection and disease? If infection does not produce tuberculosis, why trouble about infection at all? We do not take notice of streptococci, diphtheria, and other germs found in healthy throats. If the presence of a micro-organism is no indication of disease, there must be other factors which make for disease.

Though so much has been written about immunity, we neither know its mechanism nor how and where it is produced. If there is a connexion between immunization and the wide spread of tuberculosis, why should England show a death rate of 116 per 100,000 in 1915 and France 179; Scotland 111, while its neighbour Ireland shows a death rate of 172? As Sir Robert Philip says, "The fascinating theory of communal immunization on natural lines fails badly when tested by hard facts."[2] Besides, biochemistry suggests that immunity reactions may be chemical and physiological rather than bacterial.

Mass infection may be artificially produced in animals by injecting large quantities of bacilli, but this is a different thing from showing that it occurs in human beings under natural surroundings. Even in animals the intraperitoneal and intravenous injections prove fatal from general toxaemia rather than from bacterial infection. Drs. Haldane and Barwise have observed that while phthisical tin miners and grit-stone workers never go to a hospital, but stay at home and expectorate sputum loaded with tubercle bacilli, their wives and children never seem to be affected with the disease,[3] showing that even a close contact with advanced infection does not necessarily produce tuberculosis in others.

Though great commotion and alarm were created about typhoid carriers, Dr. Hamer, in his latest council report,

[1] Adami and Martin: Report on Observations upon the Cattle at Outremont.
[2] Sir Robert Philip: *Present-day Outlook on Tuberculosis.*
[3] Fishberg: *Pulmonary Tuberculosis.*

quietly throws overboard both "typhoid Mary" and the "Folkestone carrier" by saying that "in neither of these classical instances was the case proven." He also says that in spite of typhoid prevailing in considerable excess in 1898 to 1900 and the consequent appearing of many hundreds of carriers of typhoid bacilli newly on the scene, the succeeding years shows a steady decline, and adds that facts of this nature are "wholly irreconcilable with the bacillus carrier thesis."[4] So also will the story of the spread of tuberculosis by carriers be found unproven on careful investigation.

Not till England comes to see, as America has done, that "tubercle bacillus is no longer tuberculosis"[5] can any progress be made in solving the problems of tuberculosis. The theory that "stamp out bacteria and you will stamp out disease" is becoming more and more untenable at the present day. A proper natural diet is everything to the infant under a year old. Nature has intended that cow's milk should go to rear a calf and not a human child endowed with all the high faculties of mind, reason, intelligence, consciousness, personality. Here lies the beginning of the tragedy of the tuberculous child. Improve the social and economic and moral conditions of the people, so that the country may rear strong and healthy mothers who would feed their children with their own milk, then tuberculosis among children will become as rare as in so-called savage countries where they are breast-fed and live more or less natural lives.—I am, etc.,

Mendip Hills Sanatorium, Nov. 21st. C. MUTHU.

SIR,—In your issue of November 6th you kindly published a letter from me on the subject of tuberculous milk. In that letter I stated:

"It must be remembered that the average dairy farmer reads his trade journal; that his trade journal is naturally written to please him; that Koch's statements concerning bovine tuberculosis are still reiterated in those journals; and that all assertions which tend to minimize the gravity of infection with bovine tuberculosis are seized with avidity."

I now send you a copy of the *Dairy World* for November 16th; on page 249 you will find the following words: "The danger from tuberculosis, if it exists at all, has been grossly exaggerated." On page 250 a column is devoted to the views of those who hold that "although tuberculous milk may cause infection it is probable that its infective virulence is over-estimated," and, again, a letter is quoted from the BRITISH MEDICAL JOURNAL, in which the following statements are made:

"With such facts before us, which could be multiplied, how is it possible to believe that tuberculosis in children is caused by drinking cow's milk? In fact, the tendency of modern thought is to challenge the whole germ theory of tuberculosis and to shift the angle of vision from specific to social causes of the disease."

Once again I ask that a sufficiently important body representing the medical profession shall tell those of us who are working in the dairy world whether it is worth our while to try and eliminate bovine tubercle bacilli from our milk or not.—I am, etc.,

R. STENHOUSE WILLIAMS.

Research Institute in Dairying, University College, Reading. Nov. 24th.

FUTURE OF HOSPITALS.

SIR,—The Edinburgh meeting of the Medical Guild (reported in your issue of November 20th, p. 799) was of opinion that hospital authorities should "devise a scheme whereby patients should contribute to their own maintenance according to their circumstances." The question at once arises whether this is not abandonment of the fundamental principle on which the voluntary hospitals are based. Provision of maintenance and medical assistance for those helpless through illness by the combination of charitable funds from the well-to-do and service by the medical profession has been the ostensible object of the hospitals. Is it the case that the two factors of monetary and medical provision are no longer to be co-ordinate?

Where the monetary provision has had to be undertaken by any public authority the British Medical Association, with very obvious support from the profession generally, has affirmed that the surrender of the claim to charitable maintenance should be accompanied by the surrender of the claim to charitable medical service. Is it quite clear that the suggested scheme does not contravene canons of social and medical organization so fundamental that it would be dangerous and undesirable even as a makeshift in the problem of the voluntary hospitals?—I am, etc.,

Dundee, Nov. 22nd. ELEMENTAL.

BLACKWATER FEVER.

SIR,—I note with interest that both Drs. Goodall and Harford agree in the malarial nature of this affection, with chill as a predisposing factor. In my book on *Blackwater Fever* (J. Bale, Sons, and Danielsson) these points were pointed out, and the disease has been regarded by me as bilious malignant tertian ague. In all these cases congestion of the liver is present; and the liver, being unable to deal with the sudden large amount of haemoglobin and débris from the destruction of red corpuscles, the kidneys have to give passage to the haemoglobin. It is the sudden loss of liquid blood and destroyed corpuscles which causes the great weakness of the heart. The heart must have fluid to act on, and be nourished by red blood corpuscles. The sudden enlargement of the spleen (often to the umbilicus) is Nature's attempt to do the necessary replenishment.—I am, etc.,

Harringay, Nov. 21st. A. G. NEWELL, M.D., D.P.H.

VENEREAL DISEASE PROPHYLAXIS.

SIR,—In view of the evasive and illogical attitude taken by the Ministry of Health in its first annual report, and in its refusal to assist the policy of the Society for the Prevention of Venereal Disease as evidenced by the Minister of Health's reply to our deputation, we feel that it is our duty to lay a plain statement of the facts before the public, who we hope will demand an inquiry by an impartial and competent body as to the strict truth of such statements.

We definitely affirm and are prepared to bring conclusive evidence as to:

1. The efficacy of immediate self-disinfection in the male as a prevention against venereal infection and the possibility of almost eradicating these diseases by this means.
2. The biassed nature of the composition and report of Lord Astor's Interdepartmental Committee, the high authority of which the Minister of Health strongly emphasized in his speech at the deputation.
3. The gross inaccuracy of the statistics supplied by the War Office.
4. The failure of the Government, the War Office, the Admiralty, and the Ministry of Health, to organize public education on this subject or carry out any thorough scheme for testing the efficiency of immediate self-disinfection as a preventive of venereal disease either during the war or since the armistice.
5. The increase in venereal disease since the armistice, and its necessary effect on innocent women and children, by increasing sterility, miscarriages, and the production of diseased children.
6. The very large amount of popular support for a campaign of education in the principles and practice of the prevention of infection by venereal disease by means of immediate self-disinfection that is given by organized labour, the medical profession, and practically all those who have had personal experience in the prevention of venereal disease by such methods.
7. The great financial burden that venereal disease is to the nation.

We also wish to call attention to the very large number of young persons of both sexes—but especially young men—who persist in voluntary exposure to risk, and to the fact emphasized by the late Sir William Osler and many others that infection may be conveyed to the innocent by a cup, glass, bath, towel, razor, and many things in common use.

As we are receiving no financial help from the Government, we are entirely dependent on the support of the public, to whom we appeal for financial assistance to carry on our educational campaign. Donations will be received by the Honorary Secretary.—We are, etc.,

WILLOUGHBY DE BROKE, President.
BRYAN DONKIN, Vice-Chairman Executive Committee.
WM. ARBUTHNOT LANE,
JAMES CRICHTON-BROWNE, Treasurers.
ELLEN ASKWITH,
JANE LORIMER HAWTHORNE,
R. A. LYSTER,
FREDERICK MOTT,
ERIC PRITCHARD,
G. ARCHDALL REID,
C. W. SALEEBY,
J. H. SEQUEIRA.
H. WANSEY BAYLY, Hon. Secretary.

Society for the Prevention of Venereal Disease, 143, Harley Street, W.1, Nov. 27th.

[4] Report of County Medical Officer of Health for 1919.
[5] Dr. Allen Krause: *American Review of Tuberculosis*, March, 1920.

HONOURS.

ORDER OF THE BRITISH EMPIRE.

THE following appointments to the Order of the British Empire are announced for services in connexion with the war:

C.B.E. (Civil).—Dr. George C. Hancock, medical supervisor of army contracts at home. Dr. Alfred C. Jordan, for work in connexion with radiology at Queen Alexandra's Hospital. Dr. John S. Low, medical supervisor of army meat contracts in South America. Mr. Wm. M. Mollison, F.R.C.S., for voluntary services at St. Dunstan's. Dr. James Pearse, inspector of various factories manufacturing foodstuffs in the United Kingdom for the consumption of the troops.

O.B.E. (Civil).—Dr. Robert T. Bakewell, anaesthetist to St. John and St. Elizabeth Hospital.

LEGION OF HONOUR.

The President of the French Republic has conferred the Cross of Chevalier of the Legion of Honour upon Mr. R. Atkinson Stoney, F.R.C.S.I., of Dublin, "In recognition of his services with the French army, as Médecin Major, 2ème Classe, in the late war."

Obituary.

ST. BARTHOLOMEW'S men in the middle eighties will learn with regret of the death of Mr. SYLVESTER DAVID WILLARD, M.R.C.S., L.R.C.P., on November 28th at his house in Queen Street, Mayfair, after about ten days' illness with bronchopneumonia supervening on increasingly frequent asthmatic attacks, from which he suffered since the age of one year. His father was a medical man in Albany, New York, where Willard was born in March, 1865, and, though educated at St. Bartholomew's and formerly all his medical life in practice in London, remained an American citizen. After qualification he worked for a year in America, and then returned to London and held several resident appointments, especially at the Cancer Hospital. Starting practice in Victoria Street, he became connected with the Equitable Insurance Company, U.S.A., and later, when he moved to Hertford Street and Queen Street, W., was medical officer, United States Consulate-General, London. He lived with his mother, a well-marked personality whom he much resembled physically and mentally, until her death a year ago at the advanced age of 86. Dr. R. H. King, a close friend for thirty-seven years, writes: "He was a man of distinct personality and of wide sympathies, so that he had a varied acquaintance in all parts of the world. His numerous patients and friends knew that he was interested in their individuality, and always eager to help in difficulties, medical or otherwise. It was this combination of the man of the world and the careful painstaking physician that ensured the confidence of his patients."

DR. A. DESBOROUGH CLARK, of Hove, died recently, after an illness of six days, from pneumonia following a cold contracted whilst visiting patients. He was 53 years of age, and, after receiving his medical education at St. Bartholomew's Hospital, took the Scottish triple qualification in 1894. He was medical officer to the Metropolitan Police seaside home and a member of the Brighton Medico-Chirurgical Society. He took great interest in the work of the British Medical Association and was a member of the Executive Committee of the Brighton Division. He had been in partnership with Dr. A. H. Dodd for twenty-five years and was highly respected and esteemed by all his colleagues in the town. He had been churchwarden to the Hove Parish Church, and the Vicar of Hove, in conducting a memorial service, voiced most eloquently the feeling of all when he spoke of the high and unselfish character of their late colleague.

WE regret to record that Sir EDGCOMBE VENNING, F.R.C.S., late of the 1st Life Guards, died at Falmouth on November 17th, aged 83. He was born on April 20th, 1837, the son of J. M. Venning, Esq., educated at St. George's Hospital, and took the M.R.C.S. diploma in 1858, the L.R.C.P.Lond. in 1862, and the F.R.C.S. in 1867. After filling the posts of house-surgeon and surgical registrar at St. George's he took a commission as assistant surgeon in the 1st Life Guards on April 14th, 1863, and served in that regiment for fifteen years. Subsequently he engaged in private practice in the west-end of London. He was knighted at the close of 1905, his knighthood being among the honours conferred by King Edward VII in connexion with the recent resignation of Mr. Balfour's Ministry. Sir Edgcombe Venning was medical attendant to Mr. Balfour on various occasions when he was Prime Minister.

BY the death of Miss MARY GUY a well known personality has passed away from the social and medical life of Edinburgh. For twenty-six years Miss Guy has held a unique position in connexion with the antituberculosis movement. She had been lady superintendent of the Royal Victoria Hospital since its foundation in 1894, and had played an important part in its progressive development. She was the daughter of Dr. William Guy, of Norwich, and sister of Mr. William Guy, F.R.C.S., Dean of the Dental Hospital and School, Edinburgh. After receiving her training at the Royal Infirmary, Edinburgh, she became assistant superintendent there. While holding that post she was invited in 1894 by the committee of the Royal Victoria Hospital to direct the nursing in that institution—the first sanatorium in Scotland for the treatment of tuberculosis. Miss Guy was an acknowledged authority on everything pertaining to the care of tuberculous patients. At the outbreak of war, when the Royal Victoria Hospital came under Red Cross administration, Miss Guy continued in chief charge. For her services she was awarded the Royal Red Cross of the First Class.

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE following have been appointed examiners for medical degrees in 1921 and 1922:

Organic Chemistry: Mr. F. D. Chattaway. Human Anatomy: Mr. F. G. Parsons. Human Physiology; Dr. J. G. Priestley. Materia Medica and Pharmacology: Dr. W. E. Dixon. Pathology: Professor G. Dreyer. Forensic Medicine and Public Health: Dr. B. H. Spilsbury. Medicine: Dr. E. F. Buzzard. Surgery: Mr. J. Howell Evans. Obstetrics; Dr. A. Donald.

UNIVERSITY OF CAMBRIDGE.

AT the congregation to be held on Wednesday, December 8th, the following Grace, having received the sanction of the Council, will be offered to the Senate: "That the statute for women students proposed in Report A of the Syndicate on the Relation of Women Students to the University be approved." If this Grace is rejected the recommendations contained in Report B of the Syndicate will be brought forward at a later congregation (see BRITISH MEDICAL JOURNAL, August 21st, 1920, p. 284).

At a congregation held on November 26th the degree of Doctor of Medicine was conferred upon G. L. Attwater and G. Hoffmann.

The Services.

DEPUTY INSPECTOR-GENERAL EDWARD J. SHAROOD, R.N.ret., has been awarded a Greenwich Hospital pension of £50 a year, with effect from October 15th, in the vacancy created by the death of Deputy Inspector-General James Long Sweetnam.

DEATHS IN SERVICES.

LIEUT.-COLONEL THOMAS HOWARD FOULKES, Madras Medical Service, Administrative Medical Officer of the Kohat Brigade, was shot dead in his bungalow at Kohat, on the North-West Frontier of India, on November 15th. His wife was badly wounded at the same time, and was carried off by the murderers, but subsequently released. He was born at Coonoor, in the Nilgiri Hills, Southern India, on April 2nd, 1870. He was educated at St. Bartholomew's Hospital, took the M.R.C.S. and L.R.C.P.Lond. in 1892, and entered the I.M.S. on July 29th, 1893, becoming lieutenant-colonel after twenty years' service. He took the F.R.C.S. in 1905, and the M.R.C.P.Lond. in 1912. After six years in military employment, he took civil employ in the province of Madras as a district medical and sanitary officer in 1899. In July, 1908, he was appointed in that capacity to Vizagapatam, where he was also superintendent of the medical school and lunatic asylum. In June, 1912, he was appointed Durbar Surgeon of Mysore State, and during the war reverted again to the army. He he had served in Burma, in small campaigns, in 1894-96; on the north-west frontier in the Tirah campaign of 1897-98, in the Bara Valley operations (medal with clasp); and in China in 1900 (medal), as well as in the recent war. He received the C.I.E. on January 23rd last, and the Star of Nepal a few days before his death.

A casualty list published on November 15th gave the name of Captain Charles Marsh Gozney, M.C., R.A.M.C.(T.F.), as previously reported missing, believed killed, now reported as killed in action. He was educated at Leeds, where he graduated M.B. and Ch.B. in 1914. He took a commission as lieutenant in the 1st West Riding (Leeds) Casualty Clearing Station on January 1st, 1915, and was promoted to captain on July 1st, 1915. He had served with the 1/15th battalion of the London Regiment in France and received the Military Cross on August 16th, 1917. The report does not mention the place or date of death.

Medical News.

DR. WILLIAM GIBSON, of Campbeltown, Argyllshire, has retired at the age of 97. He graduated M.D. at the University of Edinburgh in 1854, and he has been a member of the British Medical Association for more than fifty years.

THE memorial in Sir Patrick Dun's Hospital, Dublin, to past students who fell in the war will be unveiled on Wednesday, December 8th, 1920, at 5 o'clock p.m. The Lord Chancellor of Ireland, Major-General Sir William Hickie, K.C.B., Lieut.-Colonel Sir Walter Buchanan, M.D., K.C.I.E., and the Chaplains to the Hospital will take part in the ceremony. All old Dun's men and their friends are cordially invited. The memorial consists of a large brass tablet bearing thirty names of past students who served in the war and were killed or died on service prior to the date of armistice; also the endowment of a memorial bed. The memorial has been subscribed for entirely by their comrades who also served in the war and were past or present students of the hospital—417 altogether. The honorary secretary of the memorial fund is Dr. Henry C. Drury.

DR. KATHARINE R. DRINKWATER, wife of Dr. H. Drinkwater of Wrexham, has been placed on the Commission of the Peace for the County of Denbigh.

UNDER the direction of Dr. M. Calot a course of practical instruction in orthopaedics will be given, as in previous years, at the clinic at 69, Quai d'Orsay, Paris, from January 17th to 24th, 1921. The course, which will be held in the afternoons, will deal with congenital and acquired deformities, and with the treatment of surgical tuberculosis, and of fractures. The fee is 140 francs.

THE fund for increasing the clinical facilities for the medical education of women at the Royal Free Hospital, inaugurated at the luncheon given by 100 representative women to 100 representative men last October, now amounts to £27,000. A generous gift of £1,000 has recently been received from Sir Dorabji Tata of Bombay. Owing to various alterations at the hospital, it will be possible shortly to put into force the policy of providing beds for patients who can afford to pay for their maintenance; it is hoped to open twenty-three such beds about the middle of January. Contributions to the appeal fund should be sent to Sir Francis Layland-Barrett, Bt., M.P., Royal Free Hospital, W.C.1.

DR. C. S. SHERRINGTON, president-elect of the Royal Society, delivered the Huxley lecture of the Birmingham University on November 26th. The subject of the lecture, "The Gateways of Sense," was chosen partly because it was a biological question which Thomas Huxley had illuminated in various of his writings, and one in which he was particularly interested. Beginning with the sense of touch Professor Sherrington passed in review the senses of smell, sight, hearing, pain, heat, and cold. The fact that there was no electrical sense might probably, he thought, account for the relatively late arrival of a knowledge of electricity. While there were certain animals with electrical organs for discharging electric shocks to destroy their prey, there was no hint of an electrical sense, though did man possess it it would be a great advantage to him in many directions.

MR. MARTIN HARPER has devised a method by which he hopes to climinate eyestrain in connexion with the cinema. He replaces the open spaces in the revolving shutter in front of the projector by minutely perforated blades. Not only is the flickering, which is believed to cause eyestrain, greatly diminished, but the pictures are improved, the lights and shades being brought out with greater emphasis, and a finer stereoscopic effect secured.

IT was stated in the SUPPLEMENT of May 29th, 1920, that the National Council for Combating Venereal Diseases had been invited to dispatch Commissions, under the aegis of the Colonial Office, to the Crown Colonies and Protectorates. Two Commissions, one to go East and one West, have started, and are already at work. A third Commission, of which Mr. Kenneth Walker, F.R.C.S., is the Medical Commissioner, is about to visit the Mediterranean area to investigate the conditions regarding venereal disease at the more important ports. It will leave London on December 10th for a period of four or more weeks.

THE annual meeting of the Birmingham and District General Medical Practitioners' Union was held at the office of the Panel Committee on November 11th. The President (Dr. J. F. Craig) referred to the various activities of such institutions as school clinics, treatment centres for tuberculosis and venereal diseases, infant welfare centres and prematernity clinics, at all of which work was now done that used to fall to the lot of the general practitioner. It was impossible, he said, to view this gradual extension of officialism without grave misgivings, and it was only by every practitioner doing his best in the way of looking after his patients that the peril of a whole-time medical service could be resisted. He referred to the general apathy of the profession, and deplored the fact that so many were still not members of the British Medical Association. At a later stage Dr. James Neal spoke on the danger which confronted the general practitioner. Dr. Jordan, in an interesting address, gave an exposition of various difficulties encountered in obstetric practice.

IN consequence of allegations brought to the notice of the Ministry of Pensions by a deputation claiming to speak on behalf of ex-service men in Manchester, the Minister requested the Board of Control to institute an inquiry into the conditions at the County Asylum, Prestwich, Manchester. Sir Marriott Cooke and Mr. A. H. Trevor, Commissioners to the Board of Control, conducted the investigation. They were accompanied by Dr. Cunyngham Brown, Deputy Director-General of Medical Services, Ministry of Pensions. Their report is to the effect that all the allegations are unfounded, but that it is very desirable that facilities should be given to representatives of the three joint associations of ex-service men to visit the asylum periodically and see the service patients.

A RAMSGATE medical practitioner was acquitted, at the Kent Assizes, on November 27th, of a charge of defrauding the Kent Insurance Committee of sums amounting to £22 by making false returns for attendance on panel patients. The case for the defence was that the confusion of insurance accounts was due to loss of memory after a motor accident.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

ASEPTIC CATHETERS.

"ST. B." inquires as to the best means of sterilizing gum-elastic bougies and catheters, and for the name of a good catheter lubricant.

*** A satisfactory method of sterilizing gum-elastic bougies and catheters is by means of formalin vapour. Various forms of apparatus may be obtained for this purpose. The most convenient receptacle is an air-tight metal box fitted with two or three trays for holding various sizes of sounds and catheters; formalin vapour is generated from small tablets of formaldehyde placed in the box. The instruments are absolutely sterile after six to twelve hours. Although the older forms of gum-elastic catheters were destroyed by boiling, those made by the best French firms may be boiled. Care must be exercised that they be not allowed to cool while in contact with other instruments, or with the sides of the sterilizer, for in such a case the varnish, softened by the heat, will lose its smoothness. A convenient lubricant is prepared by Burroughs, Wellcome and Co., ready for use in tubes, under the name of lubafax.

ABSENCE OF TUBERCLE BACILLI FROM DRIED MILK.

"J. G." asks whether tests for the presence of tubercle bacilli have been made on dried milk.

*** Some information on the subject is contained in a report by Professor Sheridan Delépine to the Local Government Board upon the effects on the bacterial contents of certain condensing and drying processes used in the preservation of milk. The report was published in 1914. Experiments showed that the hot cylinder process of drying milk materially decreased the risk of conveyance of disease by tuberculous milk. Although the tubercle bacilli were not invariably killed, it was clear that their virulence was very much diminished. A later part of the report (p. 122 et seq.) contains a reference to results of bacteriological examinations on samples of commercial dried milk from various sources. The tubercle bacillus was particularly tested for, but out of the number of these commercially dried milks investigated tubercle bacilli were not found in any case.

HYPERHIDROSIS.

DR. SPENCER CHURCHILL (Ryde) writes: In reply to the inquiry of "Beaten," in the BRITISH MEDICAL JOURNAL of November 27th, as to treatment for hyperhidrosis of the palms of the hands, I would suggest the use of *x* rays. I suffered from this distressing condition and considered it likely to be a bar to my success as a doctor. In 1911 I read a paper written by Dr. Pirie on a treatment devised and used by him, in which he kills the sweat glands by exposure to *x* rays. I consulted Dr. Pirie, and was given by him a course of his treatment. The result is a complete success. My palms are now always dry. The only drawback to this method is the slight disfigurement of telangiectases.

"LAERTIDES" writes: Hyperhidrosis on palms of hands or in axillae (where it is more common) can be rapidly, permanently, and safely cured by means of *x* rays. Treatment should only be attempted by experts, as too weak doses have no effect and overdosage may result in telangiectases. I have a case (a professional violinist) who was cured thirteen years ago and remains perfectly well still. In her case the hyperhidrosis was so bad that she had almost abandoned her work through inability to finger the strings.

INCOME TAX.

"COLONIAL" has retired and come to live in the United Kingdom; he desires information on questions the gist of which may be gathered from the following answers:

*** As he has not come to this country for a "temporary purpose," he is liable to income tax as from the date of coming, whether or not he is actually in the country for six months in this financial year, but that does not mean that he must account for tax on earnings prior to coming. The point with regard to income due at the date of landing but not paid until after is somewhat difficult, but, on the whole, we are of the opinion that it is not liable to income tax in this country. We take the ground that the only "possession" assessable here is the right to pension, the right to the arrears of salary is not, in our view, a "possession" yielding an income assessable to tax. If the 4 per cent. deduction is compulsory, "Colonial" is not liable to tax on that part of the pension so withheld. As to life assurance, the ordinary allowance can be claimed if it is with a company trading in this country, or the amount can be deducted from the pension if it is paid abroad before remittance of the pension. If Colonial income tax is paid on the pension the amount so paid can be deducted from the British income tax thereon, provided the deduction does not exceed one-half of the British income tax chargeable when that amount is calculated proportionately on the total income assessable here.

"J. B. A." is in practice as an assistant and has claimed the allowance of expenses for (1) repairs to cycle used professionally, (2) cost of bringing his personal library up to date, (3) costs of professional correspondence, (4) bus fares on professional visits, and (5) expense incurred in obtaining medical periodicals. The local inspector of taxes seems to be under the impression that such expenses are normally borne by the principal and not by the assistant, and has asked our correspondent to obtain "a certificate from his employer" on the point.

*** We cannot but think that the local inspector's mind might be disabused by some personal conversation if "J.B.A." can conveniently make an appointment with him and discuss the matter in person. The expenses seem to us to be clearly legitimate within the limitations that our correspondent has adhered to, and if a personal interview is impracticable we suggest that he should send the inspector a reasonably detailed statement of claim and ask for his appeal to be listed for hearing by the Commissioners (Local or Special) if the matter cannot be settled by agreement. The disadvantage of that course, however, is that in the case of a formal appeal the date and time of meeting is fixed by the Commissioners and the appellant must attend or allow the appeal to go by default.

"C. F. M." asks for a note setting out the tax now payable on an income of £500 from investments and £500 from earnings.

***

Total income	£1,000	0	0
Deduct one-tenth of earned income (£500)	50	0	0
Amount of *assessable* income...	950	0	0
Deduct allowance for self	135	0	0
Income chargeable to tax	815	0	0
Of which £225 is chargeable at 3s.	33	15	0
And the balance (£590) is chargeable at 6s. ...	177	0	0
Total tax payable	210	15	0

If the person in question is married the allowance is £225 instead of £135, and the total tax £27 less; that total might, of course, be affected also by allowances for children, life assurance premiums, etc.

LETTERS, NOTES, ETC.

DISPENSING.

"A COUNTRY MEDICO" writes: I have long been of opinion that no doctor should dispense and no chemist should prescribe; but there should be safeguards. I would therefore suggest (1) a doctor who keeps a dispenser should be allowed to dispense; (2) if a chemist does it he should not be allowed to repeat a prescription without the doctor's initials, or, perhaps better, the patient should not be allowed to handle the prescription at all; (3) in dispensing practices the fees would have to be raised—I know of two instances in which doctors have lost very heavily by giving up dispensing; (4) chemists should be compelled to use the best drugs, which is not the case in rural districts now.

FEES FOR CORONERS' INQUESTS.

A CITY coroner's jury recently added to their verdict a rider to the effect that an alteration in the law was needed so as to provide for the payment of the statutory fee for the making of autopsies and the giving of evidence "to all medical practitioners, including those connected with medical institutions who at present are unpaid."

THE UNMARRIED MOTHER AND HER CHILD.

MRS. H. A. L. FISHER (Chairman of the Executive Committee) writes: In view of recent discussion and correspondence, and in order to prevent any possible misunderstanding, the Executive Committee of the National Council for the Unmarried Mother and her Child wishes to state that the objects of the council are the better care of the unmarried mother and her child, also the maintenance of a high standard of morality, and consequently the diminution of unmarried motherhood.

THE LATE DR. LEONARD GUTHRIE.

MR. H. W. BURLEIGH (Secretary and General Superintendent, Hospital for Epilepsy and Paralysis, Maida Vale, W.) writes: Recently you were good enough to publish a letter asking for a photograph of the late Dr. Leonard Guthrie. I am glad to say that two copies have been obtained—one a recent full-length snapshot, but unfortunately taken in strong sunlight, and the second a photograph taken many years ago. Both of these have been enlarged, and any of your readers may obtain copies from me, the price being 12s. 6d. each.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 37, 40, 41, 42, and 43 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 38, 39, and 40.

THE following appointments of certifying factory surgeons are vacant: Festiniog (Merioneth), Keith (Banff).

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Six lines and under	0	7	6
Each additional line...	0	1	3
Whole single column	6	0	0
Whole page	16	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.